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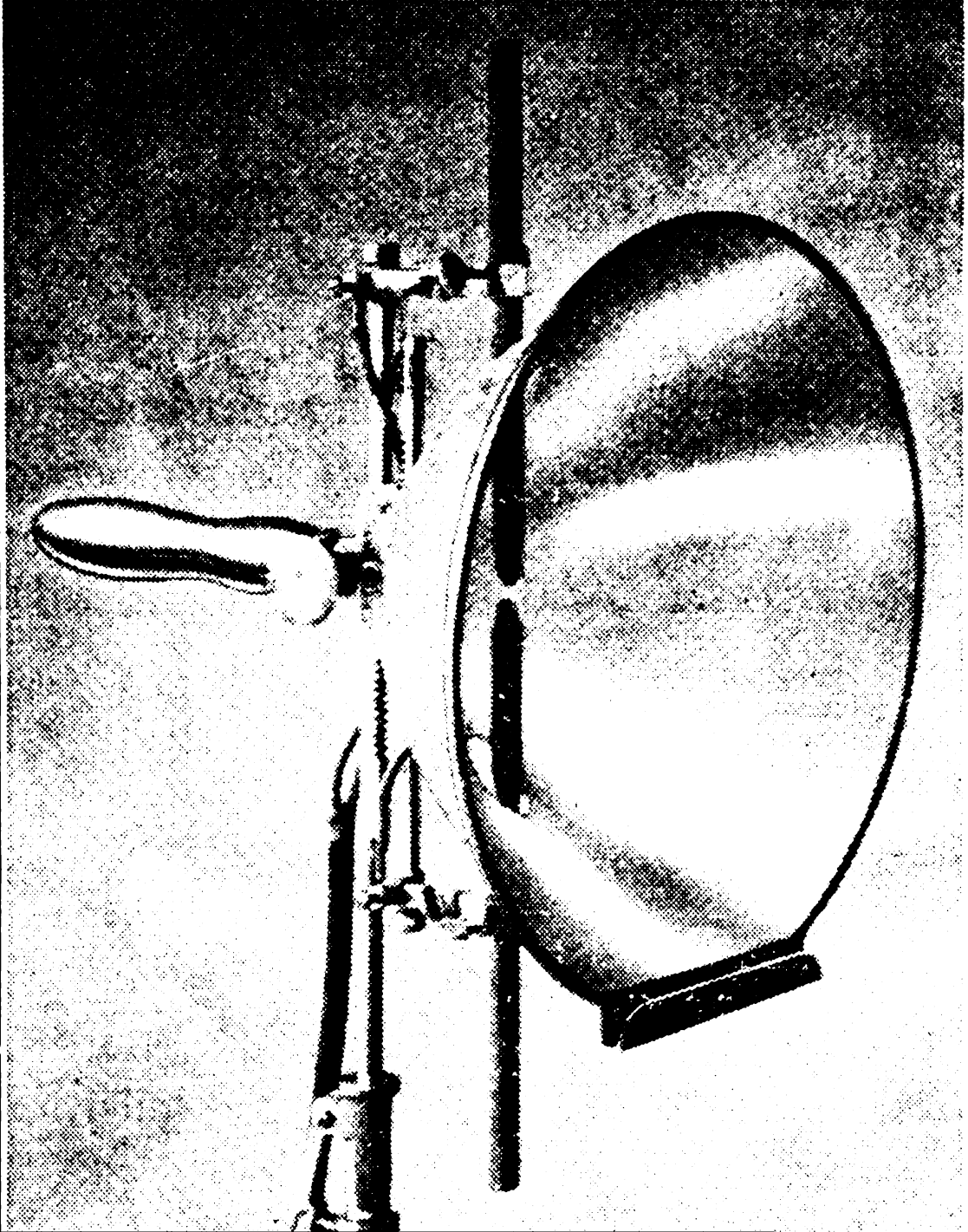
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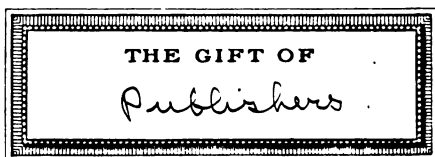
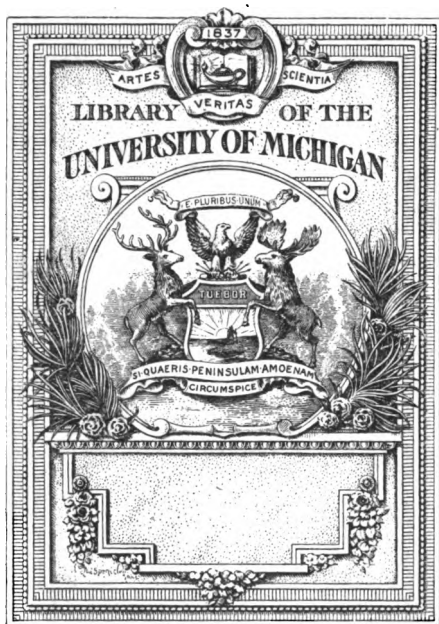
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EDITORIALS

THE MEDICAL ROUND TABLE

ELSEWHERE among the pages of this number will be found the first appearance of our "Medical Round Table," and we trust each one who turns the leaves of this Journal will read its contents very carefully and then ask themselves candidly and critically, "What can I do to make this department of the JOURNAL OF THERAPEUTICS AND DIETETICS a success?"

The aim of this additional feature is to make our pages of even a more helpful and practical nature than they were before, and we trust that our readers will avail themselves of the opportunity here offered to discuss any topic that may legitimately come under the head of *Therapeutics and Dietetics*.

We have been fortunate in getting additional helpers to assist in making this departure a necessity to those who are willing to ask questions. Herbert McIntosh, A.M., M.D., the author of the very practical series of papers we are publishing under the heading "First Steps in Medical Electricity," has kindly consented to answer the queries along the lines of Physical Therapy, and a medical graduate who has made special research

along the lines of food values in both health and disease will care for those problems which belong to the department of dietetics. The therapeutic queries will be replied to by the Editor and Associate Editor conjointly. We wish it to be thoroughly understood that every reader's opinion will be welcome and will find a place in the pages of this department. We simply ask whoever may favor us with contributions to make them concise and to the point, avoiding all theories and speculations.

Let us all work together for success and genuine helpfulness.

SPECIFY YOUR WORKING TOOLS

THE true aim of a medical journal — especially the one which belongs to what is generally termed the "Independent Class" — is to fill its pages with such matter as will aid its subscribers and readers to more successfully combat with the various abnormal conditions which they meet in their daily work.

In order that this aim may be carried out to its fullest extent it is very necessary that two points should be constantly kept in mind by those who furnish contributions along therapeutic lines. The first of these is to be sure and specify in every instance the size of the dose that was used in obtaining the results procured. The second — *this is more important than the first* — is to give the make of the preparation employed.

Without doubt the larger number of articles which find their way into the pages of medical journals are written for the purpose of assisting some other practitioner to meet with a like success. If this is the case, then no details should be omitted which will be helpful in bringing about such result.

Some might object to this naming of the preparations used, especially if they belong to what are termed the "proprietary medicines," on the ground that by so doing they are contributing to the advertising of a secret remedy. This is a fallacious form of reasoning, because the physician writing the article is aiming to aid his brother practitioner in curing just such cases as the writer reported.

If this is to be done, then the new man must not only be told the symptoms of the disease treated, but must also be given the kind of a preparation which was used to promote the specified cure; that is, if he is to meet with the same success as the writer of the article who acted as guide along the line of this particular treatment.

Specify the maker of the drug you gave, the size of the dose, the frequency of its administration, together with all the information concerning your reasons for using this particular remedy, and you have placed the one *who wishes to attempt to obtain your results* in the position where he is most likely to succeed.

If such a procedure was generally adopted we should have a much smaller number of therapeutic nihilists and a very much greater belief in the efficacy of drugs to eradicate abnormal conditions.

THE SELECTIVE FUNCTION OF THE CELLS AND THE ACTION OF DRUGS

~~The~~ doctrine of the selective action of the cells, by which they are enabled to choose out from the blood those elements which they have need of, and appropriate them to the supply of their wants, while they reject all other elements, and send them along to be used by such other cells as may have need of them, is one which offers an easy solution of many things in physiology and medicine which are otherwise hard to understand.

Stated a little more at length, the theory may be illustrated as follows: In the general blood-stream as it comes pouring out of the left side of the heart, and goes pulsing through the arteries to every part of the system, there is to be found every kind of matter which goes to make up the different tissues and structures of the body. There is oxygen to purify the blood and revivify the tissues, phosphorus for the brain cells, lime and gelatin for the bones, albumen for the muscles, and the proper materials for all the different kind of cells, mucous, serous, glandular — in short, the things which are needed for every part of the body.

Nor can the material which is intended for the nutrition of one part be made use of by any other part. Each cell claims for its own and takes unto itself that kind of material, and only that, which can be elaborated in its own factory, and made up into the substances which it needs and uses in its daily life and work. Unto each part its own, and every part unto its own place, is the law of life. So through all the parts of the body this one fluid goes coursing on its way, while at every station there is thrown off by the blood and taken up by the cells those particles of matter which are needed there, and only those. There is a selective affinity of each part for its own material. The hair cells pick out with unfailing accuracy those substances which go to the making up of hair. The liver chooses only those materials which can be changed into sugar and bile, and the other liver materials and liver products.

Again, the quantity which is normally appropriated by any cell is the amount which is needed to restore and preserve the physiological equilibrium, or proper balance of the functions. As the processes of waste are always going on, so the repair of tissue must go on apace, and these two are normally equal, no more being taken up by the cells than is needed to carry on the natural functions of the part, or than can be carried off by the organs of excretion.

To be sure, just as in nature everywhere we find a normal action and

an abnormal one, so here there is such a thing as loading down the circulation with matter which is not needed by any of the tissues, yet which cannot be gotten rid of except by the regular physiological processes of nutrition, and hence it has to be taken up by the cells; and there is such a thing as overburdening the system with the best of materials, so that the cells will take up more than they need, or than they can properly dispose of. In either case, the result is that the functions dependent on these cells are rendered abnormal in their action, or are depressed in their character, or unduly stimulated. We then see the symptoms of innutrition, or overnutrition, or of poisoning. This is only in the line with what is done by reasoning creatures every day, for there are none of us who live up to our light and knowledge all the time and under all circumstances. We all of us eat too much at times, and improper food at that. If we did not, there would be few cases of colic or typhoid fever or gallstones or rheumatism for us to treat. Nature carries on her operations automatically to a certain extent, it is true, but she makes false steps at times, and needs an intelligent mind to direct her in her work.

To carry the theory a little further, the same principle holds good with medicinal and drug substances as with food and dietetic materials. When active remedies are given in small amounts, and repeated at the proper intervals only, we find that there is produced a definite effect — and if the drug was properly indicated, a remedial effect — on some definite organ, tissue, or structure, while the other organs, tissues, and structures are apparently uninfluenced thereby. Hydrastis has an especial action on the mucous membranes; bryonia influences especially the serous tissues; jaborandi acts primarily on the sweat glands of the skin, and in a less degree on the other excretory glands. Strychnine is the great nerve tonic, while iron builds up the blood. But if too much strychnine or any other active substance is administered, it is not in the power of nature to properly dispose of the additional quantity, and harm results to the individual. The same is true of all remedial substances, in greater or less degree in proportion to their activity and their power to accomplish good or ill.

The proper application of these principles gives us *definite medication, for specific indications, and in therapeutic dosage only.*

There may be objections to this theory, and it is quite possible that the statement here given can be improved upon. But as a whole, it is certainly a most convenient peg on which to hang a large number of known facts; and without it or its equivalent in some form, we have very little foundation for any advanced science of therapeutics.

J. M. F.

DEPARTMENT OF THERAPEUTICS

VESICARIA COMMUNIS

BY A. WALDO FORBUSH, M.D., SOMERVILLE, MASS.

WE had been led to believe that the botanical name for this plant was, as given, *vesicaria communis*. Upon investigation — further than the flavor of commercialism in its American introduction — we find that this nomenclature is not recognized by leading botanists.

The plant belongs to the *Lesquerella Globosa* (Watson), a member of the mustard family — *Cruciferae*. There are a great many varieties, the various designations are as follows: *Vesicaria Globosa*, *Vesicaria Shortii*, *Lesquerella Globosa*. The following descriptions are taken from standard works at hand. The common name by which this plant is known is Bladder pod.

"Slender, erect, or ascending, sparingly branching, six inches to twenty inches high, finely stellate-pubescent all over. Basal leaves obovate, one inch to eleven and one half inches long, obtuse; stem leaves narrower, linear or oblong, smaller sessile, entire or with slightly undulate margins, the lowest sometimes narrowed into a petiole: flowers yellow; petals two lines (twelfth inch) to three lines long; pedicels slender, spreading, four lines to five lines long in fruit; raceme elongating; pod nearly globular, one line in diameter; glabrous when mature; seeds one or two in each cell; style very slender, two lines long."

"Pubescence dense, but evidently stellate; stems slender, often branched, a foot high or more; leaves entire or sparingly repand-denticulate; the lower oblong — spatulate; the cauline linear oblanceolate; petals spatulate, two or three lines long; pods on widely spreading pedicels, a line in diameter, shorter than the style; cells two-ovuled. *Proc. Am. Acad.* xxiii. 252. *Vesicaria Globosa*, Desv. *Jour. Bot.* iii. 171 (1814). *V. Shortii*, torr. in Short, *Pl. Ky. Suppl.* iii. 336; Torr & Gray, *Fl.* i. 102; Gray, *Man.* ed. 2, 38. — Tennessee, Kentucky, and E. Missouri.

"*Lesquerella*, S. (Wats.) 1888. Bladder-pod. *Cruciferae*. Named for Leo Lesquereux, Swiss botanist, d. 1889. Syn, *Cistocarpus*, Spach 1838; *Alyssum* (O. Kze.), *Vesicaria*, Mygrum, in part. Low herbs with inflated globose silicles. About 35 Species, N. America; 32 in United States, mostly in the West."

It is only by the use of a reliable article that we can expect to get the results from this drug in our practice. My observation and study of this plant has been made with Otis Clapp & Son's imported tincture and Wm.

S. Merrill's Normal Tincture. The strength of the latter is eight ounces of the plant to the fluid pint, while the former is one to ten drug strength. To my mind Merrill's preparation is fully equal to the imported article and will produce as good results.

The drug is collected when the plant is in its prime, before the tops begin to die, and has attained its full growth and maturity. The tincture is prepared from plants in their fresh state; not thoroughly green, but just sufficiently fresh to warrant their shipment without spoiling. They are collected in Kentucky and Tennessee.

Gemeines Blasenkraut, or the Bladder-pod (Watson) are the common names for this old household remedy much used in domestic practice in some parts of Germany and in our Middle West for all forms of urinary and kidney wrongs.

From the best knowledge at hand we find that a homeopathic physician was the first to call attention of the American medical profession to its therapeutic value, and the field of its action deserves most careful observation.

During recent years great advances have been made in pathology, etiology, and surgery; still the scientific application of remedies to abnormal conditions has been equally as great.

Treating pathologic conditions — as such — renders the physician's diagnostic sense extremely acute and his prompt recognition of the underlying influences which produce the symptoms present enables him, armed as he is with positive remedies, to do the right thing at the right time and usually with success.

The general indication for vesicaria in treatment of urinary difficulties is one of irritation and inflammation, located as the case may be, in the kidneys, ureters, bladder, or urethra. To the kidney it acts as a kindly diuretic. In the commencing, or the more chronic, albuminurias this drug has been found of signal service. There is an immediate diminution of the albumen which produces a regulation of the circulation by increasing the arterial tension, while the venous tension is diminished. It seems to influence the plastic power of the urinary mucous membrane for the better, when chronically inflamed and its structure threatened. The continued use of the drug in moderate or the material dose does not cause any inconvenience or unwarranted disturbances either of the nervous system or digestive functions.

Acute Cystitis.—The irritation and inflammation most frequently located in the mucous membrane at or near the neck of the bladder may spread from the mucous membrane to the muscular coat, or even along the ureters to the kidney. The symptoms or drug indications for this remedy are a feeling of weight in the hypogastric region; the pain is not confined to the region about the bladder, but is experienced in the iliac and sacrolumbar region. The urine may be voided drop by drop, accompanied

by straining and a scalding sensation at the neck of the bladder. The urine is also high colored, cloudy, and not infrequently there is vesical mucus mixed with blood, pus, shreds of lymph.

While we have a rich therapy for influencing the urinary apparatus, there is no one remedy that will cover quite the totality of symptoms given as the vesicaria, in this exceedingly annoying and trying pathologic condition. Under its influence the disagreeable straining to urinate subsides, the tantalizing pain ceases, and a condition of tranquility is presented. In any complicated expression, I would suggest the conservative administration of closely indicated remedies that could as well act simultaneously and conjointly — better conjointly — and thus cover the totality of symptoms.

We may speak of three grades of cystitis; either may become chronic: catarrhal, interstitial, and peri-cystitis, the catarrhal being the most common form. It is very frequent in advanced life and not uncommon in modern life at or near middle age. Symptoms calling for vesicaria in catarrhal cystitis — in addition to those of acute cystitis — are the deposit of a thick, glairy, viscid sediment in which triple phosphates and pus corpuscles may be detected. The bladder, despite micturition, remains half filled. There may be constant dribbling, apparently partial paralysis as a muscular expression. For the above picture I am not aware of a remedy which is superior to the vesicaria for the internal treatment, and could in reason depend on the same as a highly satisfactory addition to advised local treatment. Good working aid will be found in the staphis-agria, chimaphilla, or thuja.

Septic Cystitis is frequently the result of the introduction of foreign matter into the bladder by means of unclean sounds, catheters, irrigators, etc. Vesicaria will prove its worth here, as well as elsewhere, and may be given with a free hand. Nothing in applied therapy should be taken for granted. Test for yourself. The problem can be fully verified by any careful observer.

Prostatic Wrongs.— The result of the treatment of prostatic wrongs in their advanced stages by surgical methods is far from pleasing. The prostate — a sexual organ in health — is essentially a urinary organ in the pathological state. The urinary symptoms attending are usually directly due to prostatic disease expression. The inflammation is always accompanied by urinary symptoms which are of a character that call for speedy attention on the part of the therapist and the direct influence of his remedies. The treatment of the gland in its inflammatory stage is always serious in character because of the difficulty in management, and because of the close intimacy which exists between it and the surrounding structure.

The prostate is solely responsible for the urinary condition which results as a consequence of its senile hypertrophy. We should look for and recognize the more early general prostatic symptoms and direct bearings, for,

if not subdued, the irritation and after-inflammatory process may end in a long-continued sequor. *In addition to this, we have the theories and all that they imply, at the hand of some "official" enthusiast.*

We have frequently called attention to the extreme richness of our materia medica in remedies directly influencing for the better the urinary apparatus. Nevertheless there is no single remedy with a more direct affinity for the general symptoms than vesicaria possesses. Along these lines the value of this drug may be observed in its primary action upon the prostate, and its influence for relief of the resulting cystitis.

Vesicaria may be given, if desired, in conjunction with any indicated drug. For results a combination with *San palmetto* — here let me add, first be sure of your article — or eryngium, and in the more chronic cases staphisagria are not to be forgotten. I have certainly found these remedies to work nicely together. Do not expect vesicaria or, for that matter, any remedy to cure or relieve unless the patient is willing to do his part and share of the expected improvement.

Gonorrheal Urethritis — Gonococci. — Where this condition is *acute anterior and posterior* — and the infection extends along the urethra and the neighboring parts sympathize do not forget your vesicaria. The remedies from the early times and even now are legion for this intractable expression of disease. Among them all none can supersede vesicaria for therapy value. In the inflammatory stage and the more subacute stage this remedy alone, or combined with kava kava — I have found these two remedies to work very nicely together as a sedative to the mucous membrane — will be found of great value. Doctor Hunter has well remarked, "The variety of symptoms and the difference of them in different cases are well met by this combination." In the more chronic expression — chronic gleet — I would combine the vesicaria with staphisagria. I have been enabled to do more toward the complete cure of cases with this combination than any other I have used. I have succeeded nicely even in very protracted cases. For the local treatment I would suggest vesicaria, one to three drachms; thuja, one to two drachms; aqua, four ounces. A trial will convince any one of the power of this combination to destroy the urethral pus producing organisms. The silver products are employed with this object in view, and unless carefully handled they may prove undesirable in their results. Vesicaria and thuja in unison may be safely employed by the general practitioners who are thus armed against the microbe of urethral habitation.

Blennorrhagia, a urethral wrong — non gonococci — due to exposure from some acrid diseased expression from the female genitals, uterine catarrh, etc. Here vesicaria internally and as local treatment will be found quite specific, subduing the discharge, pain, tenesmus, frequent desire of urination and in preventing complications.

The more we use and the more we study this drug the more confident we are that we have not exhausted its worth for results in indicated cases.

Dosage.— I have never found any means of determining what the dose of each drug should be except by observing symptoms in the case at hand and watching the results of the drug administered.

Usual dosage of vesicaria, Merrill's Normal Tincture, five to twenty drops with water in frequent doses. Clapp's Homeopathic Tincture, five to thirty drops every one, two, or four hours in a wine glass of water.

A STUDY OF THE TWELVE TISSUE REMEDIES

BY JOHN WILLIAM FYFE, M.D., SAUGATUCK, CONN.

NO. VIII. MAGNESIUM PHOSPHORICUM — PHOSPHATE OF MAGNESIA

THIS remedy has been extensively employed with curative results in diseases having their seat in the nerve fiber cells or in the terminal bulbs of the nerves, in the muscles, or in the muscular tissue itself.

"It is stated that this remedy is found in the muscles, nerves, bone, teeth, brain and blood corpuscles. It is more abundant in the white nerve fibers, and when a deficiency of this salt occurs these fibers contract and produce one form of cramps or spasms. This occurs sometimes in tissues of the stomach and causes the walls of the stomach to contract, producing pain. If it were not for the gas that forms at these times and helps to prevent a collapse, the pain would be intense. Belching of gas that does not relieve is a prominent indication for this remedy. Magnesia phos. is indicated and in some cases acts better combined with calcaria phos."— (Kinnet.)

The antispasmodic power of the phosphate of magnesia being unmistakable, it was naturally suggested as a suitable medicament in cramps of various kinds, spasms of the glottis, tetanus, epilepsy, spasmodic retention of urine, and all abnormal conditions of a like character. Dr. W. A. Dewey, who has had large experience with the tissue salts, says that it is best adapted to the treatment of persons of a high nervous organization.

In neuralgic constrictive pains in the chest this agent exerts a corrective influence, and in arthritis, when there are excruciating pains of a spasmodic character, it is employed with advantage. In backache, when the pains are intermittent, shifting, and neuralgic, it exerts a modifying influence, and in excruciating headaches, with a tendency to spasmodic symptoms, it is deemed a remedy of merit. It is also of value in neuralgic and rheumatic headaches, when the pains are stinging, intermittent, and paroxysmal in character, and in neuralgic pains which come on periodically its relieving effect is most satisfactory.

The phosphate of magnesia has been employed for many years in acute sciatica and with the most gratifying results.

"A patient sought my services a little while ago for the relief of acute sciatica. In a few days he was much relieved and thought the worst passed. I cautioned him to avoid taking cold and bade him continue the treatment. In about three days more he again called, and said, 'Doctor, I thought I was cured, but the last two nights and to-day I have suffered terribly.' The pain was not continuous, and yet it was not a periodic pain. It was a sharp, shooting pain, with a sense of constriction occupying the hip joint, the region of the sciatic nerve and the right hypochondrium. It was not regular in its action nor constant, but would come without warning and leave without saying goodbye; in short, it was spasmodic in character.

"Remembering from experience that magnesium phosphate is antidotal to this spasmodic character of pain, I gave him the 3x in small doses every two hours. The condition was removed — the pain completely relieved.

"In another case a lady about six months advanced in pregnancy suffered with spasmodic pain radiating from the umbilicus to the pubes, not constant, but coming and going, and quite severe. Remembering that such a condition can be removed with magnesium phosphate I gave it here; results very satisfactory, as in other cases."— (Fearn.)

Magnesium phos. has also been employed in severe cases of singultus, with unmistakably curative results, and in indigestion with cramp in the stomach it has often been found an efficient remedy.

"In gastralgia the phosphate of magnesia has a magic effect, often stopping a cramping condition of the stomach when all other remedies have failed."— (Duffield.)

In watery diarrhea, with vomiting and cramps in the calves of the legs, the action of this agent is decidedly corrective, and in intermittent colicky pain it is a remedy of great value.

"I use magnesia phos. in almost every case of colic of newborn infants with absolute, invariable, prompt and complete success."— (Morgan.)

In dysentery frequent indications for the phosphate of magnesia are prominently presented, and in such cases its curative action is promptly manifested.

"In a case of dysentery the tenesmus was like a prolonged spasm of the muscles employed in defecation, and I administered magnesia phos. in hot water. The pain was almost entirely relieved by the first dose. I have never had a more prompt and pleasing result. Magnesia phos. is a grand antispasmodic, and fully as reliable as our more frequently used remedies."— (Leonard.)

In menstrual colic, painful menstruation, or in pain preceding the

flow, the phosphate of magnesia is one of our most efficient remedies.

In muscular paralysis caused by a disturbed or diseased condition of the different nerve fibers which convey the motor stimulus to the muscles it has been used with good effect, and in involuntary shaking and trembling of the hands, limbs, or head, it is said to have exercised a restraining influence.

In spasmodic nervous asthma, accompanied by a paroxysmal, dry, tickling cough, it often affords marked relief, and in true spasmodic cough, coming on in paroxysms and without expectoration, it constitutes an excellent cough medicine. In the dry cough of nervous children it is also a useful remedial agent.

This is a useful remedy in whooping cough. It modifies the cough, lessens the severity and frequency of the paroxysms, and materially shortens the duration of the disease. In this condition it should be given in hot water. One teaspoonful of the "Usual prescription" may be administered in a little hot water every three or four hours regularly, and repeated whenever a paroxysm of coughing comes on. In colic it should also be given in hot water.

Magnesium phosphorium, as well as the other tissue salts, should be carefully studied from an Eclectic viewpoint, in order that more rational specific indications may be obtained. The following, taken from Fyfe's *Materia Medica*, will suggest the lines along which such study may be profitably pursued: Spasmodic cough, coming on in paroxysms, and convulsive fits of nervous cough, ending in a whoop; persistent semi-chronic cough of a pseudo-catarrhal and nervous character; spasmodic, dry, tickling cough; darting spasmodic pains, accompanied by a feeling of constriction; spasmodic retention of urine; paralysis agitans; brain troubles of children, characterized by unconsciousness and convulsive symptoms; pain on top and back of the head, extending down the spine; pain commencing at the occiput and extending over the whole head, with nausea and chilliness; convulsive twitchings of the angles of the mouth; spasms of teething children; burning, tasteless eructations; cramps in the stomach, with sensation of a band tightly bound around the body; flatulent colic of children.

The dose of the third trituration of the phosphate of magnesia is from five to fifteen grains, but its best results are usually obtained by prescribing it as follows: \mathcal{R} Magnesia phos. 3x, gr. xx to \mathfrak{z} i; water, \mathfrak{z} iv. Teaspoonful every fifteen minutes to every four hours.

Make use of time, if thou lovest eternity; know, yesterday cannot be recalled, to-morrow cannot be assured; to-day only is thine; one to-day is worth two to-morrows.

— *Enchiridion*

PHYSICAL THERAPY

FIRST STEPS IN MEDICAL ELECTRICITY

BY HERBERT MCINTOSH, A.M., M.D., BOSTON, MASS.

CHAPTER VII

THE UTILIZATION OF ELECTRIC LIGHT MAINS

THE demand for large currents of electricity for commercial uses has made the installation of dynamo plants, in communities of any considerable size, a necessity. Such currents, furnished primarily for electric lighting purposes, may be used by the physician,

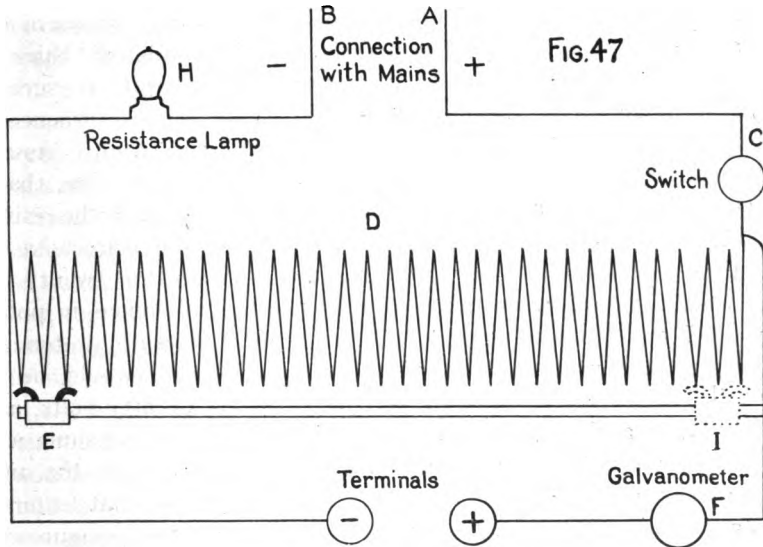
- (1). To take the place of currents generated by galvanic batteries for therapeutic purposes;
- (2). To supply alternating or sinusoidal currents;
- (3). To illuminate diagnostic lamps;
- (4). To excite coils for high frequency and X-Ray work;
- (5). To illuminate incandescent and arc lamps for therapeutic purposes;
- (6). To drive motors for the operation of static machines, drills, saws, trephines, etc.;
- (7). To heat galvanic cauteries; and
- (8). To charge secondary or storage batteries.

Let us consider briefly, in order, each of these uses, and, first, the use of commercial currents as a substitute for galvanic batteries.

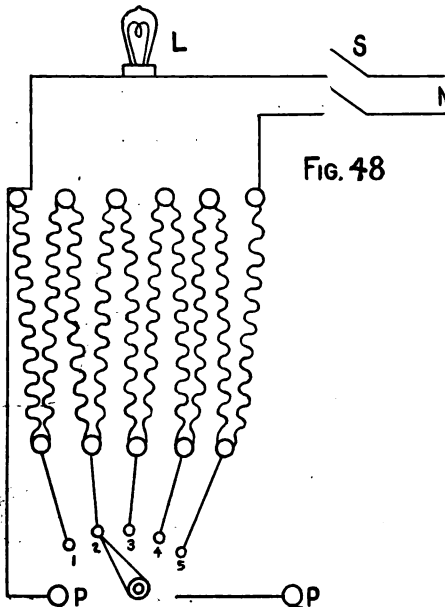
1. Here the first and most important problem is the reduction of pressure. Assuming for convenience of calculation that the direct current furnished is at a pressure of one hundred volts, we readily perceive that this must be reduced in order to be available for therapeutic uses. In order to accomplish this end we may employ lamps placed in series, and thus render the current suitable for therapeutic applications. The carbon filament of incandescent lamps offers a marked resistance to the passage of the electric current. Thus with a one hundred volt current an eight-candlepower lamp when hot offers a resistance of 320 ohms; a sixteen-candlepower lamp, 160 ohms; a thirty-two candlepower lamp, 80 ohms. By Ohm's law, therefore, $C = \frac{E}{R}$, we may readily ascertain what current is delivered on short circuit. Thus with an eight-candlepower lamp the current delivered would be as follows: $C = \frac{100}{320}$ or .31 amperes, or a little over three tenths of an ampere. Similarly we find that a sixteen-candlepower lamp would permit about six tenths of an ampere to pass, and a thirty-two candlepower lamp about 1.37 amperes.

Shunt Resistances.— It is preferable, however, to regulate currents by

a combination of series and shunt resistances as shown in Figure 47. See also Figure 21, Chapter III, on the physics of the coil current. Here the current from the mains A B passes on the positive side through a switch C,



and the shunt coil to the metal traveler E, and the galvanometer F to the positive terminal. On the negative side it passes through the lamp H to the negative terminal. It will thus be seen that in order to reach the patient the current must pass through the resistance coil D and the metal traveler by which the number of coils of wire interposed between the main and the patient is regulated.



Thus upon a 110 volt main, assuming that the lamp consumes ten volts, we shall have a residual pressure of one hundred volts for the patient's circuit when the metal traveler is at I, and zero when it is E, with all intermediate voltages between. Assuming that there are five hundred loops in the coil, then a movement from one loop to the next would mean an increase of one

fifth of one volt to the patient and a movement over five loops would mean an increase of one volt. This arrangement affords a satisfactory solution of the problem of regulation for small currents.

Regulation of large currents. Here it is customary to pass the current through a series of open coils affixed to the surface of a slate or marble slab (Fig. 48). These coils, usually made of thick iron wire, are arranged in series, and wires are led off at successive points to studs upon the surface of the switchboard, whence the current is carried to the patient through a crank arm. Assuming that there are ten lengths of wire in the spirally coiled wire, that the pressure is 110 volts, and that ten volts are consumed in the resistance lamp L, then the difference of potential between two successive studs would be one fifth of the total available pressure, or twenty volts. Thus when the crank arm stands on stud one the difference in potential between P and P would be one tenth of the total pressure, or ten volts. When the crank arm stands on stud two the difference would be three tenths, or thirty volts; on stud three five tenths, or fifty volts, and so on. It can readily be seen that shunt resistances may consume a large amount of current as, though a small amount may enter the utilization current, the subscriber must pay for the current that enters the resistance coil. Thus, if a shunt with a one hundred volt pressure carries twenty amperes, and is connected with the main for one hour, we shall have $20 \times 100 \times 1 = 2000$ watt hours, since a watt hour is the product of the amperage into the voltage for a unit of one hour, or, expressed differently, two kilowatt hours, since a kilowatt equals 1000 watts. The price per kilowatt hour being in Boston twelve cents, the subscriber would pay, therefore, at the rate of twenty-four cents.

Shunt resistances in galvano-cautery apparatus. This method of controlling the current is much to be preferred over an arrangement in series. When, for instance, it is desired to use a current of ten amperes from a one hundred volt commercial main, this could be obtained by using a lamp of ten ohms resistance, since $C = \frac{V}{R} = \frac{100}{10} = 10$ amperes. But as a current of ten amperes is sufficient to leap across an air gap, it might happen that upon breaking the circuit at the key in the cautery handle, an arc would be established which would destroy the handle, or if the platinum fused, might send a shower of platinum and copper

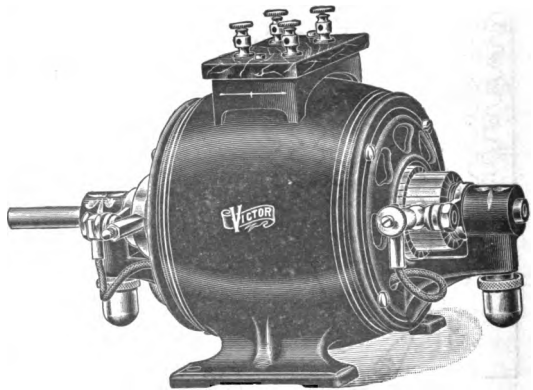


Fig 49.

upon the patient with dangerous consequences. The use of a shunt resistance avoids such a calamity, since the shunt circuit would carry the current in case of destruction of the cautery circuit.

2. *Sinusoidal or alternating currents for therapeutic uses.*—These may be obtained by connecting an alternating dynamo, as described in Chapter VI, with the direct current mains (Fig. 49). By combination with a transformer described in the same chapter (Fig. 46), the voltage may be reduced and the amperage raised for cautery purposes. Such a generator may be used in connection with a wall plate and regulated by means of a shunt resistance.

3. *Small lamps for diagnostic purposes.*—Here the current from the commercial mains must be reduced by means of resistances. For this purpose an incandescent lamp may be arranged in simple series, or a wire resistance together with an incandescent lamp may be employed.

Assuming a current of one hundred volts with a sixteen-candlepower lamp in simple series, since the resistance of a sixteen-candlepower lamp is about 160 ohms, we have by Ohm's law $C = \frac{E}{R}$, $C = \frac{1}{100}$ or five eighths or about six tenths of an ampere, which would be sufficient to light a small diagnostic lamp.

Small lamps may be illuminated by portable accumulators or they may be connected with the mains through an alternating dynamo and transformer (Fig. 45, Chapter VI).

4. *Coils for the production of X-rays and high frequency currents.*—The principle of the transformer has already been explained in Chapter VI. It was there shown that, by means of a transformer used in connection with an alternating dynamo, the relation of voltage to amperage could be altered to any ratio desired. For electro cautery purposes the amperage needs to be increased, but for the production of X-rays and high frequency currents the voltage is enormously increased and the amperage correspondingly reduced.

5. *Lamps for therapeutic applications* (a.) Incandescent lamps connected with the commercial mains furnish heat and light. The value of heat for therapeutic purposes has always been recognized, and contrivances for applying heat to the body have been used from time immemorial. Radiant light and heat, as furnished by the incandescent lamp (Fig. 50) are of undoubted value, stimulating the sweat glands and favoring the ex-

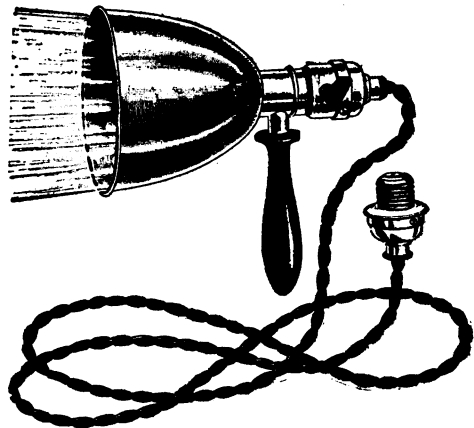


Fig. 50.

cretion of toxic materials through the skin. The important relation which light bears to vegetable growths makes it probable that the luminous rays of the spectrum share with the thermic rays in the remarkable results which have followed the use of these lamps. (b.) Arc lights. These lamps supply the violet and ultra-violet portion of the spectrum as well as heat and light rays (Fig. 51). Incandescent lamps yield the chemical rays of the spectrum in exceedingly small measure. Finsen recognized the importance of the actinic radiations in his use of the sun's rays and the arc light. To his labors the profession of medicine owes the discovery of the cure of lupus through the concentration of the sun's rays or the radiations from an arc lamp upon the affected area. He employed lamps consuming eighty amperes of current which threw their light through tubes terminating in quartz lenses. These lenses focused the light and concentrated it upon the area to be treated. They were kept cool by running water and pressed upon the diseased area in order to render the tissue free from blood, which tends to resist the passage of the chemical ray.

The great size and cost of such an installation, as is described above, have rendered it desirable to employ smaller lamps, consuming less

current, but yielding results equally satisfactory. The limits assigned to these chapters do not permit an exhaustive description of these lamps. It is, however, interesting to note the evolution of arc lights from the ponderous and expensive apparatus of Finsen to the simpler but very effective lights which have supplanted those employed by the Danish pioneer.

Lortet-Genoud Lamp.

One of the earliest of these lamps is that known as the Lortet-Genoud lamp, which has served as a model for other lamps bearing a different name. This is a portable lamp and has both a cooling shield and a compressor.

Condenser Spark-Gap Lamp. In another variety

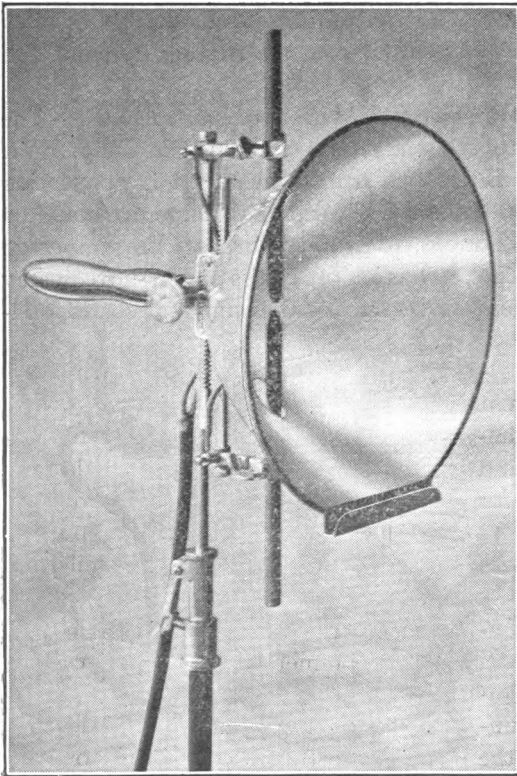


Fig. 51. Solar Lamp.

of lamp advantage is taken of the fact that condenser spark discharges are especially rich in actinic rays. This is known as St. Bartholomew's lamp and has proved of great service in the treatment of lupus.

Uviol Lamp. This lamp adapts the Cooper-Hewitt lamp to therapeutic uses. The latter consists of a glass tube exhausted of air and containing mercury or mercury vapor. When traversed by an electric current the tube glows with a brilliant light, which is very rich in the actinic portion of the spectrum, but deficient in calorific rays. As, however, ordinary glass is impervious to the actinic rays of the spectrum, a variety of glass, recently manufactured, is employed, which is said to be pervious to these rays. The uviol lamp consists of a tube of this special glass eight to thirty millimeters in diameter and twenty to thirty centimeters in length. It furnishes a light exceedingly rich in the violet and ultra-violet portions of the spectrum. There are numerous lamps of American manufacture which follow more or less closely the design of the Lortet-Genoud lamp above described. Among these are the solar lamp (Fig. 51), and the Victor Finsen lamp (Fig. 52) the latter in particular reproducing the lines of its original with much fidelity. The solar lamp is designed to occupy the field hitherto cultivated by the incandescent, furnishing not only light and heat but the highly im-

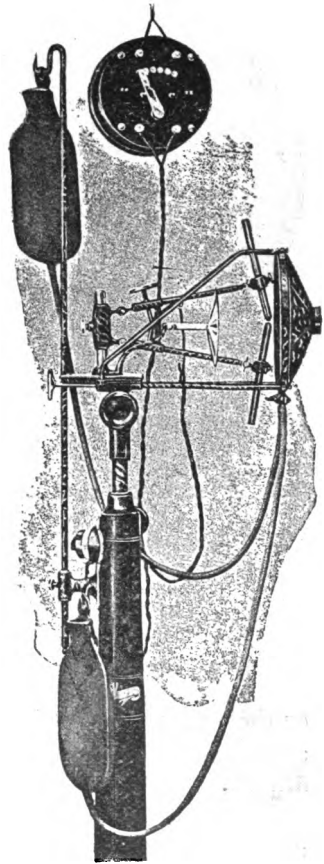


Fig. 52. Victor Finsen Lamp

portant chemical rays of the spectrum. For this purpose the marine search light as manufactured by the Carlisle & Finch Co., of Cincinnati, Ohio (Fig. 53), is admirably adapted, furnishing an enormous volume of light, and lending itself readily to adjustment and manipulation. For therapeutic purposes a lamp using twenty-five amperes and illuminating objects at a distance of a mile and a quarter may be successfully employed.

6. *To furnish power for static machines, drills, etc.*—This is an obvious application of the current from the commercial mains and needs no detailed description.

7. *To heat galvano-cauteries.*—This may be done in several ways. (a.) An accumulator or secondary battery may be charged from the direct current mains through an incandescent lamp and used to heat a

cautery (Fig. 54.) (b.) The pressure of the commercial mains may be reduced:

First, by using a motor dynamo with two distinct windings in the armature, one to receive a current, say, of 110 volts from the commercial mains, and the other to give off a larger current, say, of ten amperes at eleven volts pressure, or,

Secondly, by using a motor dynamo to turn an alternating dynamo which is combined with a transformer (Fig. 46).

8. *To charge accumulators or secondary batteries.*—Storage batteries are useful for many purposes. They may be charged from the commercial mains and carried to the patient's house for his treatment,

or they may be used for lamp or cautery purposes even when the mains are accessible, because they supply a reduced pressure without requiring additional apparatus for increasing resistance.

Conversion of alternating currents into direct currents.—In many communities the alternating current is the only current that is furnished by the commercial mains. This current lends itself readily to transforma-

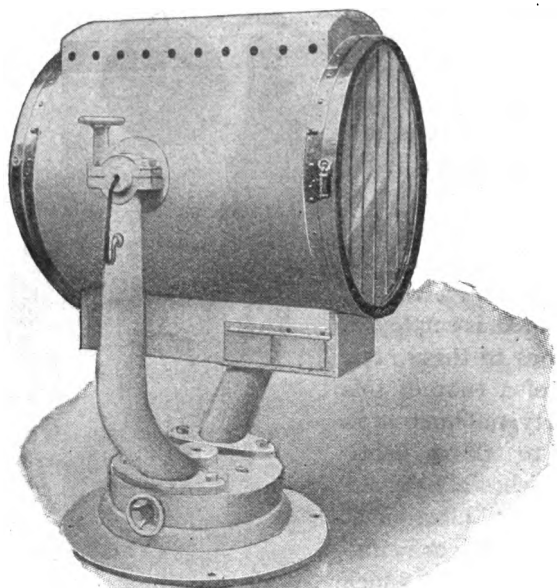


Fig. 53. Marine Searchlight

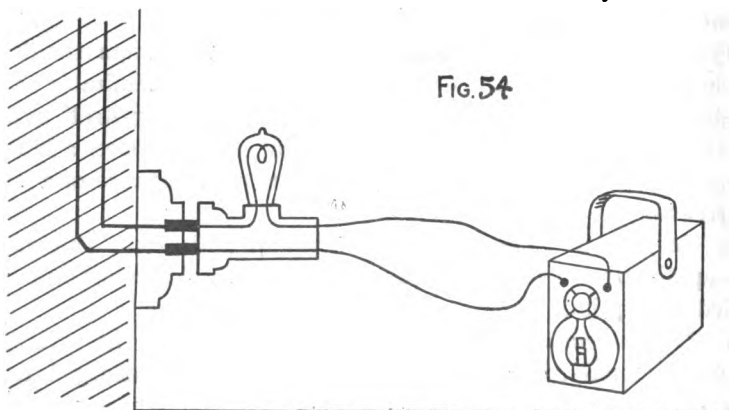


Fig. 54

tions, and can thus be easily distributed as needed upon commercial circuits.

Such currents are, however, not always suitable for medical purposes

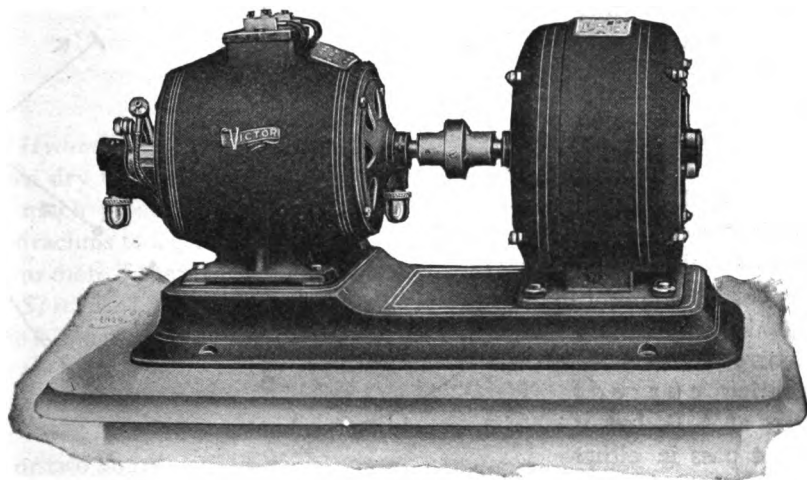


Fig. 55.

and it therefore becomes necessary to convert them into direct currents. This may be done in a variety of ways.

(a.) An alternating motor may be used to drive a direct current dynamo. Figure 55 represents an alternating motor coupled to a direct current generator.

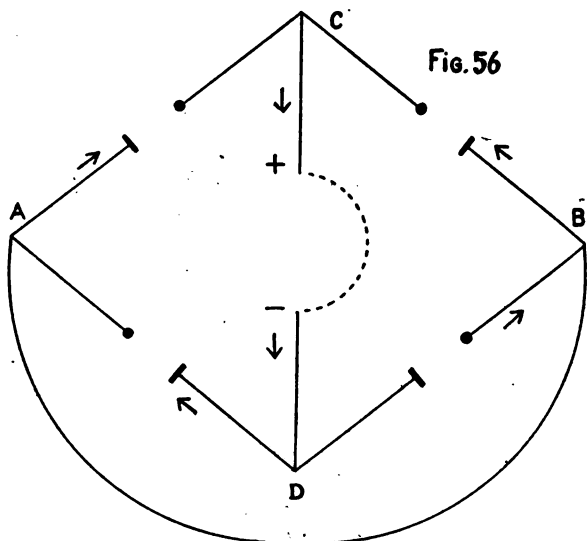
(b.) A mechanical rectifier may be employed. This is a contrivance which by making contact at the proper moment closes the circuit and transmits impulses flowing only in one direction, while arresting those that flow in the opposite direction. This gives a series of impulses flowing in the same direction. Batten's rectifier illustrates this principle.

(c.) Electrolytic rectifier. This depends for its efficiency upon the peculiar behavior of aluminium when placed in the circuit of an alternating current. It has long been known that aluminium, when acting as the anode of an electrolytic cell, offers a high resistance to the current, but when acting as the kathode offers no such resistance. If, therefore, an electrolytic cell has aluminium for one pole and a metal or carbon for another, it will permit the passage of an alternating current through it in one direction, and oppose its passage in another.

Such a cell may consist of a plate or rod of aluminium immersed in a jar of ammonium phosphate solution for one pole and an iron plate for the other. This may be connected by means of a conductor and a simple lamp resistance with the alternating mains and used to charge an accumulator, provided that the direction of the flow from iron to aluminium is toward the positive pole of the accumulator.

Nodon's Valve.

The disposition of cells in an electrolytic rectifier may be illustrated by a diagram which involves the principle of the Wheatstone bridge (Fig. 56). Four cells are arranged in circuit and the direction from iron to aluminium, that is from anode to kathode is indicated by the arrows. The alternating current enters at A B, but it cannot pass in either



direction because it is opposed by one or the other of the aluminium cells. But if C and D are connected, as indicated by the dotted line, the current will pass through A C D to B and when the current is reversed and B is positive it will pass through B C D to A. The aluminium cell as thus arranged may be used to drive direct current motors, charge accumulators, and excite Rhumkoff coils. The current derived from a rectifier is unidirectional but pulsatory. Though not a steady current it may be used when the direct current is required as a cheap but somewhat unsatisfactory substitute for the method described under (a).

In the Nodon's valve, as above described, the electrolyte is a solution of ammonium phosphate, and the aluminium poles are probably alloyed with zinc.

Therapeutics of the alternating current. The alternating current supplies, as already described in Chapter VI, the so-called sinusoidal current. The curves from alternating generators are not similar, but they are near enough to sine curves to be satisfactory for medical purposes.

(To be continued)

As jewels are treasured in the casket, to be brought forth on great occasions, so we should preserve the remembrance of our joys, and keep them for seasons when special consolations are wanted to cheer the soul.

— Jane Kirkpatrick

THERAPEUTIC NUGGETS

SOME FEVER REMEDIES

Hydrochloric Acid.— In low fevers where there is a deep red, or a brown dry tongue, with a brownish coating that is thickest in the center and much prostration, this remedy will be found very beneficial. Add two drachms to a glass of water and give your patient one to two teaspoonfuls, or more if they desire, every one, two, or three hours.

Spec. Med. Belladonna.— This drug may be given in any fever where there is congestion, and the patient is inclined to be dull and wishes to sleep. The eyes are usually heavy and dull, the pupils being dilated with an expressionless face. The extremities are cold. *Dose:* Add five drops of the Spec. Med. to four ounces of water, mix, and give in drachm doses every one or two hours.

Sulphurous Acid.— When your patient is much debilitated, with a sweetish, mawkish breath, and a tongue that is covered with a thick glutinous coat of a brownish color, like spoiled beef, remember this agent. *Dose:* Add two to four drachms to four ounces of water and give drachm doses every two to four hours.

Spec. Med. Bryonia.— In those fevers that present a hard vibratile pulse, with the right cheek flushed and much frontal pain extending to the occiput, especially if the pain is increased by motion, the bryonia will be found useful. *Dose:* Add ten to fifteen drops to four ounces of water and give in drachm doses ever one to two hours.

Spec. Med. Hyoscyamus.— Frequently you will meet with fevers where there is considerable nervous irritability; your patient is delirious and from violent spasms of delirium sinks into a low muttering stupor; there is generally an excited nervous condition and sleep is lacking; the face is most frequently flushed. When such cases demand your attention do not overlook the use of this valuable remedy. *Dose:* Add ten drops to four ounces of water and give in drachm doses every one half to every two hours according to the needs of the patient.

Spec. Med. Gelsemium.— In any fever where your patient presents a flushed face, with bright eyes and contracted pupils, and much restlessness of the head, this drug should be promptly administered. *Dose:* Put ten to twenty drops in four ounces of water and give in drachm doses every one to two hours.

Spec. Med. Veratrum.— When your patient fever shows you a pulse that is full and bounding with a flushed skin — the type of sthenic inflam-

mation — this drug will prove a very useful remedy. *Dose:* Place ten to fifteen drops in four ounces of water and give in drachm doses every one to two hours.

Spec. Med. Aconite.—Where there is an increased temperature with a hot, dry skin, and much restlessness, combined with a small frequent pulse—especially in children — this is an admirable remedy. *Dose:* Add five drops to four ounces of water and give in drachm doses every one half hour to every two hours. This remedy should not be employed in low, continued fevers where there is much debility.

Spec. Med. Echinacea.—This drug finds a prominent place in the treatment of typhoid and all septic fevers. It is indicated by a bluish coloration of the mucous membrane, with a tongue that is brownish or almost black, and discharges which are very offensive. *Dose:* ten to twenty drops well diluted every two hours.

Sodium Sulphite.—In any fever where the tongue is broad and flabby and is covered with a dirty white coating, and a disagreeable odor to the breath, sodium sulphite is invaluable as an aid in cleaning up the digestive tract. *Dose:* ten grains every two hours. The easiest way to take this disagreeable drug is to place the powder upon the tongue and wash it down with a swallow of water.

Spir. Ether Nitrosi.—In simple fevers where the skin is inclined to be moist and the pulse is free but frequent, with scantiness of the urine, this remedy will prove helpful. *Dose:* one to two drachms are put in four ounces of water and the patient given drachm doses every one to two hours.

Sulph. Quinia.—In those fevers which are marked with periodicity, where the pulse is soft, the tongue moist and inclined to clear, without much irritation of the nervous system this drug will be helpful. *Unless these conditions are present the quinia will do more harm than good.* *Dose:* Five to ten grains every three hours, during the intermission.

Spec. Med. Nux Vomica.—In the so-called malarious fevers where your patient presents a yellowish coloration of the eyes and a yellow coating on the tongue, and complains of a dizzy feeling in the head with constant nausea and a sense of fullness in the locality of the liver, nuxvomica will aid in restoring the normal condition if given in proper dosage. *Dose:* Add three to ten drops to four ounces of water and give in drachm doses from every one half hour to once in four hours. The smaller dose frequently repeated is preferable.

“ Swift years, but teach me how to bear,
To feel and act with strength and skill,
To reason wisely, nobly dare,
And speed your courses as ye will.”

DEPARTMENT OF DIETETICS

THE DIETETICS OF SUGAR

BY J. A. DENKINGER, M.D., BOSTON, MASS.

Continued from page 377, Vol. II

SUGAR IN DILATATION OF THE STOMACH

IN this condition, the use of amylaceous food should be restricted. Rusks, zwieback, the dextrinized flours and malted foods are permissible, but should be used in moderation, sugar, especially canesugar, is best excluded altogether to reduce all danger of fermentation and flatulence to a minimum.

SUGAR IN FERMENTAL DYSPEPSIA

IN the fermental dyspepsias, especially the intestinal form, sugar is badly tolerated and poorly utilized, being very liable to produce abnormal fermentation with the formation of gas and organic acids which stimulate the motor activity of the intestines resulting in diarrhoea, for which reason sugar should be restricted in this condition. It is, upon the whole, a good rule to exclude, or at least to restrict the use of sweets in all forms of dyspepsia.

AMYLACEOUS DYSPEPSIA

IN amylaceous dyspepsia the substitution of dextrinized and malted foods, malt extracts, and honey for starchy foods is productive of excellent results.

Gastric disorders due to impairment of secretory functions:

Hypersecretion (Excessive secretion of gastric juice) and *Hyperchlorhydria* (Excess of Hydrochloric acid in the gastric secretion). "Hypersecretion," as is well remarked by Croftan, "is always accompanied by hyperchlorhydria, but the latter may also occur as an independent affection without hypersecretion and manifest itself by an excessive outpouring of hydrochloric acid only when the stomach contains food." The two conditions are closely related, the difference between them being more of degree than of kind.

There has probably been more controversy as to the proper diet in hypersecretion and hyperchlorhydria than on the dietetic treatment of any other condition. One school favored an almost exclusively proteid

diet on account of the well-known property of proteid to combine with and neutralize the irritating action of the hydrochloric acid, but it was found that a predominant proteid diet in many cases materially increased the secretion of hydrochloric acid. Another school favored a carbohydrate diet when it was shown that such a diet did not stimulate but actually lessened the secretion of hydrochloric acid. Still another school demonstrated that the ingestion of fat decreased or retarded the secretion of the acid. Time has shown the fallacy of feeding all cases of hyperchlorhydria and hypersecretion successfully on any one-sided dietary, and (with certain limitations) a mixed diet in which fats and carbohydrates are well represented (Boas) is now generally accepted as the most satisfactory diet in the conditions under consideration.

As to proteid food, fresh meats, taken in moderation, as well as fresh eggs are usually well borne, but cured, spiced, and corned meats should be stricken from the dietary as they stimulate the flow of hydrochloric acid, the same applies to all spices and condiments, salt, pepper, paprika, mustard, "hot" sauces and all highly seasoned and stimulating, as well as mechanically irritating food. The same applies to very hot and very acid food, and to strong alcoholic drinks. All food taken should be finely divided.

As it has been shown that fats have a marked restraining influence upon the production of hydrochloric acid, they should form a liberal portion of the dietary; butter is particularly well borne, nuts and olive oil are also useful; the fat of meat is less digestible. Milk, which according to some authorities has of all foods the least excito-secretory action on the gastric glands besides neutralizing hydrochloric acidity, is an ideal food in this condition and should also form a liberal portion of the hyperchlorhydric diet. Where plain milk is not tolerated or the patient tires of it, any of the dextrinized flours or malted foods may be added, or malted milk with the addition of a little cream substituted.

Now as to carbohydrates, first as to starches. The experiments of Pawlow and others have shown that the ingestion of carbohydrates do not increase gastric secretion, but as pointed out by Ortnier, starchy foods, are, as a rule, not well digested in hypersecretion and hyperchlorhydria for the reason that the very acid stomach contents rapidly check amylolytic digestion, and unless the starchy foods leave the stomach very promptly they are very liable to undergo abnormal fermentation. The same difficulty awaits the starchy foods upon entering the intestines, as the hyper acid starchy food must first be neutralized or rendered alkaline by the intestinal juices before it can be digested. If starchy food is given, it should be given in small quantities, preferably in the form of vegetable purées or cereal gruels prepared with milk, and *after* the ingestion of protein and fatty foods. While starchy foods should be given with caution and in great moderation, all authorities advocate the free use of partly digested or

dextrinized starches, such as toast, zwieback, and the various malted foods, as experience has shown that these foods do not stimulate gastric secretion or cause an increase in the amount of hydrochloric acid, they are, moreover, very easy of digestion.

Says Hemmeter: "All cases of hyperacidity require a certain amount of carbohydrates, and as it is a matter of experience that a proteid diet alone will not permanently satisfy the cravings of hyperchlorhydrics, and flour and the many dishes prepared from it are not readily converted into dextrin in an excessively acid medium, it is expedient to recommend dextrinized flours." *

Riegel, too, warmly commends the various preparations of *Kindermehl* (infant foods, in which the starchy cereals either wholly or in part have been changed into dextrin and maltose).

Boas, one of our most eminent authorities, believes that a predominant meat diet is not well adapted to the condition we are considering and recommends a mixed diet of fat and carbohydrates in suitable form, but *no starches*.

SUGAR IN HYPERSECRETION AND HYPERCHLORHYDRIA

As to sugar proper: According to many leading clinicians, experience has shown that excessive acid secretion does not (with reasonable precautions) contraindicate the feeding of a reasonable amount of sugar. Oddly enough, many patients suffering from hypersecretion and hyperchlorhydria relish sugar very much and exhibit a veritable sugar hunger.

Of American clinicians, Hemmeter gives it as his opinion that "sugar does no harm in most patients," and Boardman Reed makes the statement that "where hydrochloric acid is secreted excessively by the gastric glands sugar has been demonstrated to have the property of lessening the excessive secretion."

Of European authorities, Strauss and Zweig are strong advocates of concentrated solutions of sugar in hyperchlorhydria, the latter referring to sugar "as an excellent remedial agent in hyperchlorhydria to reduce the superacid gastric juice, *provided there is no food stagnation*. Riegel also recommends sugar solutions, particularly of dextrose and honey.

It is by no means immaterial as to what kind of sugar is used. Of the sugars in common use it has been found that the predigested or partly predigested sugars, viz: dextrose, levulose, and maltose, which are readily absorbed from the gastro-intestinal tract, are more useful in hypersecretion and hyperchlorhydria than canesugar and lactose.

*Hemmeter (Diseases of the Stomach, page 200) speaks very highly of the "American product, *Horlick's Food*, a flour in which the wheat starch has been converted into dextrin by malt diastase. It has a high caloric value, and its price is sufficiently moderate for a humble practice where artificial flours seem indicated."

Summing up on the subject of the use of sugar in the dietary of hypersecretion and hyperchlorhydria, we may say that sugar, used in reasonable quantity, preferably in the form of dextrose, maltose, honey, or in the form of the malted foods of commerce, has a decided remedial action and is usually very much relished by the hyperchlorhydric patient. The only contraindication for sugar in hypersecretion and hyperchlorhydria is atony of the stomach, with stagnation of stomach contents, as this naturally favors abnormal fermentation. In this condition *all sugars* are contraindicated and a fat-proteid diet should be the rule.

SUGAR IN HYPOCHLORHYDRIA

In hypochlorhydria we have a diminution of the gastric secretion. In this condition, carbohydrates (both starches and sugar) are easily digested. Cereals and all the farinaceous foods preferably prepared with milk in the form of gruels, potatoes, toast, crackers, zwieback, the various dextrinized and malted foods, sugar and sweets generally may be freely used. Fats, especially good butter, are useful. Milk and cream are excellent. If milk constipates, add one of the malted foods to the milk or use malted milk.

[As hypochlorhydria calls for a diet that will stimulate gastric secretion, spices, including salt and pepper, broths, and meat extracts, and all spiced and salted foods, such as salt and smoked meats and fish, preferably scraped, shredded, or chopped, have been found very useful.]

SUGAR IN FLATULENCE

Sugar, when fed in excess, being very liable to undergo fermentation and to provoke flatulence, is naturally contraindicated when there is much gas in either stomach or bowels, and should be either greatly restricted or avoided altogether.

Starches are, upon the whole, less productive of flatulence than sugar. Of the starchy foods, potatoes are less fermentable than bread and are better borne than bread in flatulence, they contain less starch and none of the yeast cells which tend to make bread more liable to flatulence. Again, cake and fresh bread are more liable to produce flatulence than stale bread, toast, or zwieback. [The vegetables specially liable to produce flatulence are those containing much cellulose such as cabbage, onions, beans, and peas. Fermented liquors, especially beer and ale and drinks containing an excess CO_2 are also noted for provoking flatulence.]

(To be continued)

THE MEDICAL ROUND TABLE

DRUG THERAPY

GOLDEN SEAL

EDITOR JOURNAL OF THERAPEUTICS AND DIETETICS:

I was very much interested in the article on "The Cultivation of Medicinal Plants," and as I live in one of the states in which hydrastis grows wild, I would like your opinion as to the profitableness of undertaking the cultivation of the plant.

L. R. HERRICK, M.D.,
La Salle, Ill.

There can be no question but that there is good profit in the cultivation of golden seal, if it is rightly conducted. My own experiments in this line have not been on a commercial scale, but were intended to demonstrate whether or not the soil and climate of New England are adapted to the cultivation of this plant. So far all the indications are favorable. You have a climate and soil in which it grows naturally, and ought to have no trouble in cultivating it at a handsome profit.

Up to the year 1897, Golden Seal was sold at from fifteen to twenty cents a pound for the dried root. Since then, its price has gradually risen, until at the present time it ranges from \$1.85 to \$2.10 per pound, and the outlook is for a still further increase. The causes of this increase are in the main these two: (1) Its increasing use by physicians of all schools, whereas up to this time it was used mainly by eclectics and homeopaths. The alkaloids berberine and hydrastine now command a high price and are extensively used. (2) The exhaustion of the wild supply, consequent upon this increased demand and the higher price, which greatly stimulated the digging of the root. The plant has now become scarce in its native haunts, and only an extensive cultivation can supply the increasing demand.

The largest item of expense is the initial one of shading. For one acre of land, the cost of the lumber alone is estimated at from \$600 to \$800. Hoag estimates the entire cost of cultivating an acre of hydrastis for the three years which is necessary to mature a crop at \$1,800. At the end of that time, he calculates that the yield will equal thirty-six hundred pounds, which at \$1.25 per pound — the price when he wrote — would

bring \$4,500, and yield a net profit of \$2,700. The U. S. Department of Agriculture makes a much more conservative estimate, reckoning fifteen hundred pounds of dried root to the acre, which at the present price of \$2.00 per pound would bring \$3,000, and still net a good profit.

You must remember, however, that no one is qualified to speak with authority on this subject as yet, as it has not been on trial long enough to warrant a positive estimate. Only the pioneers have taken hold of it as yet, and you might as well be one of them. The safest way probably is to begin on a small or moderate scale, and be prepared to increase if the outlook warrants. For ourselves, we believe that a Golden Seal field is a thousand per cent better investment than a gold mine — for all but the promoters.

CANNABIS INDICA IN ALCOHOLISM

EDITOR JOURNAL OF THERAPEUTICS AND DIETETICS:

I am anxious to get all progressive physicians to make a trial of *cannabis indica* in the treatment of delirium tremens. Forty years of its use without the loss of a single patient has convinced me, and ought to convince any one, of its intrinsic merits. Its beneficent action is such that I could not successfully practice medicine without it. I am trying to get it on trial in every alcoholic ward in every hospital in this country. Possibly after trial you can help in this direction. I use only the fluid extract — either Squibb's, Sharp and Dohme's, or Hance Brothers and White's. They are reliable. There is much sold which is of no use.

E. B. SILVERS, M.D.,

Rahway, New Jersey

This letter is worth careful attention from every practical and progressive physician. Dr. Silvers is a man of wide experience and good judgment, and his opinion is that here is a drug of surpassing value in a disease in which the usual methods of treatment are far from satisfactory. We shall ask him to give his method a little more definitely and in detail for a future issue.

VERBENA HASTATA

EDITOR JOURNAL OF THERAPEUTICS AND DIETETICS:

There is one thing to be said against the use of *verbena hastata*, and that is its horrible taste. Most people consider it very bad to take, and it is. I have never found a worse dose according to my taste than half a teaspoonful of the fluid extract of this remedy, and I do not think I could take such a dose very often. It could be made into an extract as other remedies are, or taken in capsules, or made into pills and used in this way;

or its taste could be covered to some extent by making it into a syrup, similar to the aromatic syrup of rhubarb; or an aromatic fluid extract, like the aromatic fluid extract of cascara sagrada. There is one thing sure, not many people would take the common fluid extract and continue its use very long. The concentration may give the same results as other forms, but this is a matter which can be settled only by clinical use.

JOHN ALBERT BURNETT, M.D.

Green Wood, Ark.

In reply to this I will say that I have one patient who has taken the concentration in large doses with only a few weeks' intermission, for nearly six years; and she has never objected to its taste, and the effect has been so satisfactory that she says she is willing to take it for the rest of her life if it is necessary. But from all the information I am able to obtain, I do not think that the effect of the concentration is in all respects the same as that of the herb or the fluid extract. I have never seen any emetic, cathartic, or expectorant action from the concentration, though the herb is said to possess all these properties. On the other hand I am unable to say whether the fluid extract or the specific medicine would act as satisfactorily as the concentration in the cases of epilepsy in which I have used it.

PHYSICAL THERAPY

Query: Will you kindly explain to me how you would cure a urethral caruncle by electricity?

Urethral caruncles lend themselves beautifully to electrical treatment. Surgical treatment is not satisfactory for several reasons. In the first place, as caruncles are exceedingly vascular they are likely to bleed profusely, sometimes dangerously. In the second place, as they often have a broad base, it is difficult to remove them wholly by the knife. In the third place, as ether anæsthesia is usually employed where the knife is used, the operation in proportion to the lesion seems to be needlessly severe.

In the cure by electricity the operator has the choice of two methods. In the former he selects a copper electrode of suitable size, attaches it to the positive pole of the galvanic battery, and applies it to the caruncle, having first thoroughly anæsthetized it with a four per cent solution of cocaine. A large pad moistened with a solution of sodium chloride or sodium bicarbonate is attached to the negative pole and applied to the abdomen. A current of from 5 to 8 *m. a.* may be used for a period of five or ten minutes. The caruncle becomes greenish in appearance and after a number of treatments, depending upon the size of the growth, disappears.

A better method is to attach a broad, flat needle to the negative pole and transfix the caruncle through the base, as near as possible to its union

with the mucous membrane, using a current strength of from 1 to 2 *m. a.* The characteristic frothing appears, and the needle is withdrawn and passed through again in a direction parallel to the preceding, and the process continued until the caruncle is entirely removed. The cure may require several treatments, though it is possible to complete the operation at once when the caruncle is not attached by a blood base.

The result is highly gratifying both to the patient and operator and secures results unattainable with the knife, partly because the field of operation is not concealed by blood, and partly because the method favors a complete removal of the vascular growth.

Query: How do you arrange the carbon pencils in a therapeutic arc light?

Be careful to attach the positive pole to the large pencil. This is preferably placed above the smaller pencil, where the pencils are arranged in a perpendicular direction, because the intention is to throw the light downward, and 85 per cent of the energy of the arc light proceeds from the crater of the positive carbon, 10 per cent from the negative carbon, and only 5 per cent from the violet arc. A further reason for attaching the larger carbon to the positive pole is that it burns away much faster than the carbon attached to the negative pole, and must therefore be of larger dimensions.

Query: Will you give me a ready method for distinguishing the positive pole of a galvanic battery, or the direct current of the electric lighting mains, from the negative?

Cover the bottom of a saucer with a thin layer of water saturated with iodide of potassium. Drop the terminals of the connecting cords into the fluid and a brown cloud of iodine quickly appears around the positive pole. This method is more delicate than that of testing with litmus paper, the positive pole turning blue litmus paper red, and the negative pole turning the reddened litmus paper blue.

The electrolysis of water likewise affords a test of polarity as explained in Chapter II of "First Steps in Medical Electricity," which is being printed in this JOURNAL.

Query: Is there any truth in the declaration which I have repeatedly seen that plants grow rapidly when subjected to the influence of electricity?

Yes, there has been a complete demonstration recently made, which was conducted by Mr. R. Bomford, of Salford Priors, and Mr. J. E. Newman, of Gloucester, England, under the observation of Sir Oliver Lodge, and which gives added force to the contention of electro-therapeutists that electric currents are energizing and reconstructive.

The currents employed were obtained from an alternating dynamo turned by a two horse power oil engine and conducted through a transformer which raised the potential to 100,000 volts. These currents were then rectified by vacuum valves, and a positive current sent through low-

hanging wires, from which the high tension currents leaked out, manifesting themselves in the dark as a purple effluve. The negative electricity was conducted to the earth.

The vegetation lay beneath the wires, and was controlled by other patches subjected to the same conditions, with the exception of those already described. Wheat, oats, and berries of different kinds were subjected to these experiments. In the case of wheat the electrified field showed a gain over the unelectrified of 29 per cent; it was also of better quality, sold at a higher price, and made better baking flour. The results with oats and with vegetables and fruits gave similar results. The electrification lasted for only a brief period each day. Such experiments, conducted with great care and precision under the observation of perhaps the most eminent physicist in the world, furnish food for thought, and give great encouragement to those who are cultivating the highly promising field of electro-therapeutics.

DIETETICS.

Query: Will you kindly give me what you consider to be the best method of regulating the diet in summer diarrhea?

Summer diarrhea (acute gastro-enteritis) is largely a "food" disease, the chief cause being some error in diet, such as over-feeding (feeding too much at a time or at too frequent intervals), or a bad quality of food, such as stale or sour milk, teeming with pathogenic bacteria. Sometimes the "food-fault" consists of an excess of certain food elements in the baby's food, especially fat. Sugar is rarely at fault unless it exceeds the usual 5-7 per cent. Other causes of summer diarrhea are atmospheric conditions such as continued high temperature aggravated by humidity, bad air, catching cold. Quite frequently the baby's food is contaminated by means of filthy bottles and rubber nipples.

After the usual dose of castor oil (or calomel if the oil is vomited) and the washing out of the stomach and bowels with salt solutions, *when indicated*, dietetic measures constitute the chief treatment. Absolutely the best dietetic treatment consists in temporary starvation. *Stop all milk* and allow no food for twenty-four hours, and on severe cases for forty-eight hours, give boiled water only. If the starvation regimen is impractical, give *very weak* cereal waters, such as barley or rice water or very weak dextrinized gruels or one of the plain malted foods *prepared with water only* (not exceeding from one to two level tablespoonfuls of the malted food in eight ounces of water. Return to normal food (milk) should be very gradual, depending upon return of normal temperature and material improvement in the number and character of the stools. There must be no milk feeding as long as the stools are green, very malodorous, or contain curds and mucus. In going back to milk feeding, care should be taken to

keep the fats low, especially at first. It is at this stage that a temporary diet of buttermilk or skimmed milk or malted milk (Westcott) will be of great service. Open air and sunlight are also potent agencies in the treatment of this needlessly fatal disorder.

Query: Are there any special kinds of food that are particularly adapted to the feeding of a person suffering from Intestinal Ulcer?

The diet in cases of intestinal ulcer should be first of all non-irritating both chemically and mechanically and easily digestible. Such a diet is best found in a liquid or semi-liquid diet consisting of milk, cereal gruels prepared with milk, baked or mashed potato, toast, zwieback, and the malted foods. Eggs are also well borne. Chicken and mutton broths and the bland cereal soups may also be freely partaken.

Query: What articles of diet would you advise in the treatment of acute nephritis?

The most suitable food in acute nephritis is *milk in some form*. If plain milk, hot or cold, or with the addition of some flavoring extract, or milk diluted with some alkaline water, is or becomes distasteful to the patient, buttermilk or kumyss or malted milk should be tried. Starchy additions to milk in the form of gruels, made from cornstarch, rice, oatmeal, arrowroot, tapioca, macaroni, spaghetti, or just plain bread or crackers in milk come next.

Tea, coffee, and chocolate should be restricted, and all meat extracts prohibited. Alcoholic beverages, including malt liquors, being like meat extracts, renal irritants, should also be forbidden. The use of salts and spices and condiments generally should also be restricted.

Meats should be withheld until the patient is well on the way to recovery.

Query: Are there any particular kinds of diet that will prove helpful in the treatment of rheumatism? Also state what is to be avoided.

No hard and fast rules can be laid down in the dietetic treatment of this disease. The best diet in rheumatism, as in so many other diseases, is a milk diet; milk should be strictly adhered to during the fever period: Tea, coffee, chocolate, cocoa, beef tea, and other meat extracts should be excluded from the dietary. The free use of water should be encouraged in all stages of the disease. Sugar and sweets generally should be kept very low in the diet of rheumatic patients on account of their tendency to undergo abnormal fermentation. The same applies to vegetables containing an excess of starch. Meat and proteid food generally should be eaten in moderation. The use of alcoholic drinks, including malt liquors, should be prohibited, or at least restricted. Very acid fruits should be avoided. Oranges are harmless, and for some reason lemon juice possesses decided curative properties in many cases.

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EDITORIALS

THERAPEUTIC SPECIALISTS

In this day of specialism, in all the various branches of human work, there is a crying need that more of the medical fraternity fit themselves to become therapeutic specialists. This is the one branch of the practice of medicine that never can be overcrowded. There is plenty of work for every one who is willing to engage in this portion of medical science.

Possibly the reason that this field has not been more assiduously cultivated is to be found in the belief, held by many physicians, and taught by some prominent medical colleges, that the drug treatment of disease is not scientific and cannot be placed upon a scientific basis.

The fallacy of this doctrine can be easily demonstrated by those who are willing to give the subject a sufficient amount of study. Like many other fields of research, the application of drugs to the restoration of the normal condition must at first be learned by the use of empiricisms. The old familiar law — like causes produce like effects — is just as true in the medical world to-day as it was when Newton applied it, through his discovery of the law of gravitation, to the astronomical world, and so revolutionized the science of astronomy.

The different drugs that are used by the physicians act upon different parts of the human economy and in a different manner, no two having exactly the same action. By the means of experimentation we have learned that certain drugs will produce certain effects. We have also learned that certain deviations from the normal or healthy condition of the human body are always indicated by certain symptoms. By continued study and close application we have also discovered that certain remedies when directed toward certain symptoms will produce a positive remedial action, thus indicating that the treatment of abnormal conditions may be reduced to a scientific basis providing as sufficient amount of time is devoted to the adjustment of drugs to the symptoms or conditions over which they exercise a curative function.

When the symptoms or indications calling for a remedy have once been determined, they have been discovered for all time and for all forms of disease. Veratrum is indicated by the full bounding pulse, and it makes no difference whether this is found in pneumonia or erysipelas it will prove alike curative in both diseases. This is only one of many drugs which have been fitted to exact indications or symptoms. When remedies are administered along these lines the medication is rightly termed scientific.

The one great obstacle to the rapid spread of this doctrine is the tendency among so many to treat names, not realizing that mere names are a hindrance to correct medication instead of a help, as they often cover a large variety of symptoms and indications.

Every departure from health should be closely analyzed and the various symptoms and indications for various remedies carefully differentiated. Then if the right drugs are opposed to the right indications, improvement occurs, and the patient is gradually brought back to the normal condition.

When this method of treating the sick is adopted by the majority, we shall no longer hear the cry concerning the unscientific practice of medicine, but on the other hand the statement will be made that the practice of medicine is a science, and has been made so by those who devoted themselves to the special study of therapy, and so have earned the title of Therapeutic Specialists.

MAY THE BEST MAN WIN

The following extract is taken from the "Drugs and Sundries," August, 1908, and contains some very pertinent points that should be applied to the question which is taking up so much of the attention of the medical and pharmaceutical world at the present time.

Their adoption, by both sides of the controversy, could not result in

anything but good for the advancement of scientific drug therapy, and the placing of medicinal agents in their rightful position as related to the restoration of normal conditions.

"The most potent factor in the struggle for the elevation of the professional side of pharmacy is the very one which some of the would-be elevators are fighting. From the time that Darwin enunciated his famous proposition, 'The Survival of the Fittest,' it has been recognized as the law of the Medes and Persians, that he was right. The carpenter who turns out a botched job, or the machinist of to-day who cannot work to the five thousandth of an inch, has no place in the world's work; and the ten-talent man takes the place of the one who has but one. It's the way of the world, and the idea that a man is necessarily one of the elect because he sits in the shadow of a drug store sign embellished by his own name, lacks an appeal to thinking men and women. It is not what a man says he is, or what he can do, but what he shows himself to be and what he does, that counts, and if he neither shows nor does, he is not entitled to the count, nor will he get it.

"In reference to this matter the 'Journal of the American Medical Association' has something to say in regard to what are known as 'proprietarys,' as follows:

"The point is not whether a certain firm's products are among the best, or whether they are even good. It is right to assume that when a physician calls for a drug made by a particular firm, *he has found by clinical experience that that drug gives a definite therapeutic effect which he can interpret.* It is also fair to assume that any firm putting out a given product that by its quality establishes a demand, *shall have some assurance that an inferior article will not be substituted when its own preparations are called for.* The prevalence of the substitution evil is one of the things that makes pharmaceutical houses hesitate to call their products under the scientific name, relying on the physicians to designate the particular brand of drug wanted."

"This is the Journal's 'point' and the point we make is, that if the retail pharmacist does not, or cannot (which is the case in some instances), make a product equal to that of the large manufacturer, or of some one who makes a specialty of some certain thing, he cannot expect intelligent people to give his product the preference, simply because he has not the means or knowledge required to produce a perfect article, any more than he himself would put up with stale bread, because his baker is a poor man and can't afford to lose 'leftovers.'"

I have taken the liberty of italicizing a portion of the above extract which I believe strikes at the root of the whole matter; the right of the physician to prescribe and use the preparation that he believes is best, and the right of the manufacturer to be assured that if his preparation is called for *it shall be dispensed.*

DEPARTMENT OF THERAPEUTICS

LOBELIA: A VEGETABLE ANTITOXIN*

THE APPLICATION OF THIS REMEDY IN THE TREATMENT OF DIPHTHERIA.

BY E. JENTZSCH, M.D., CHICAGO, ILL.

THE title of this paper reveals to some extent my intention, which is a desire to inform you of my experience with the Specific Medicine Lobelia as a vegetable antitoxin in diphtheria. I will confine myself entirely to the therapeutic discussion of the disease mentioned, basing my contention on personal experience and observations, which extend over a period of nearly four years in about one hundred and fifty cases of diphtheria, with not a single death.

Right here let me tell you that I have no longing for notoriety nor a desire to reap financial benefit from this. It is merely an effort to reduce, nay, even to abolish, the high death-rate which regularly prevails from this disease. The remedy has proven itself so universally reliable in my hands that I have no doubt that what I claim can be accomplished by you as well.

HOW I CAME TO USE LOBELIA IN DIPHTHERIA

You may be interested to know how I came to use it. There are two vital points which are responsible: First, my studying eclectic therapeutics; second, the desperate condition of my own child who was then about three years old, due to diphtheria.

To save time and trusting that you will credit me with sufficient competency in my vocation, I will say that my boy was stricken with a fulminating case of naso-pharyngeal diphtheria. The serum antitoxin was exhibited promptly in sufficiently large doses and repeated, but with no other result except that the child passed from an active sthenic condition, with dyspnea, into a passive collapse, with apnea. This I had witnessed before and knew it to be fatal with certainty. I was therefore in despair, and in this hopeless despair I prayed; and let me tell you, a more fervent prayer never reached the Supreme Physician. In this prayer I had a vision, which was a hand pointing to the clearly written word, Lobelia. Instantly I recalled the writings of the great Scudder, where he extols Lobelia as a life-saver.

Thereupon I filled full my hypodermic syringe with the pure Specific Medicine Lobelia and gave the child the entire dose subcutaneously.

**A paper read at the Chicago Meeting of the Illinois State Eclectic Medical Society, May 1908.*

Strange to say, I gave it with a confidence altogether out of proportion to the circumstances. However, the result proved this to be justified, for the patient responded immediately in a marvelous manner.

All the fatal symptoms gave way to those of returning health, the patient passing from a death-struggle into a peaceful slumber, from which he awoke after three hours, somewhat weak. Another dose was given, which was followed by a still more pronounced reaction for the better. The patient from that time continued to convalesce, and with the exception of a post diphtheria pharyngeal paralysis, made a rapid recovery, the paralysis yielding to another dose of the same remedy.

LATER EXPERIENCE WITH LOBELIA

This happened nearly four years ago, and since then I have repeated in many cases the phenomenal experience with this remedy. At first I used the serum and the vegetable antitoxin in conjunction. But gradually I realized that the latter was entirely reliable, doing even better without the serum, so that now I can tell you with absolute certainty that the vegetable antitoxin is in every respect far superior to the serum for the reason that it is more reliable because it acts quicker and with a much greater certainty than the serum, and, secondly, it prevents, arrests, and cures the disease promptly, irrespective of what day treatment is instituted.

It makes no difference whether it is the first or the sixth day of the existence of the disease, with the exception that in the longer-standing cases the treatment must be repeated more often — every two to three hours, until the desired result is obtained.

I note that Dr. Walls of our City Health Department recommends a repetition of the serum every twelve hours in very bad cases, but it has been my experience that this is a slow and unsatisfactory method and usually of no avail.

The vegetable antitoxin (*Lobelia*) produces no symptoms whatever except those of returning health. It is therefore preferable to the serum when we consider the unpleasant symptoms which are often produced by the latter and which Dr. Walls takes great pains to pronounce harmless, although he aptly describes them as distressing (and which are known as the serum disease).

WHY THE REMEDY IS EFFECTIVE

The use of the vegetable antitoxin is consistent with our motto, "*Vires Vitales Sustinendae.*" It strengthens all the vital functions, notably the circulation. It does not dispel the symptoms of the disease at the expense of the patient's strength. It creates no other disease, but simply cures the patient, all of which cannot be claimed for the serum.

Another feature of the Lobelia is that it is so cheap that the cost need not be considered; besides it is more uniform in quality, does not readily decompose, is easily-carried around, and may be given by the doctor with as little ado as a hypodermic injection of morphine. It is safe as well as harmless on account of its nature and origin.

What I have told you, Fellow Members, is true. I have found it to be so not in a few instances, but in many. However, I want you to convince yourselves and for that reason have given you a demonstration of the benignness of the drug.

I have preached of this before to societies and individual doctors, and have found two principal arguments against its use: first, that it is a highly dangerous drug. How well founded this is you may judge by the demonstration I have given. The drug when so given is absolutely harmless. I have given in this manner a half-dram dose to an infant but a few minutes old, as a means of resuscitation, with success. Let there be no more fear of this remedy.

The second assertion is that the serum antitoxin gives satisfactory results. Let me quote here the official statistics of the 1906 report published by the Chicago Health Department, which gives five hundred and forty-seven deaths out of a little over five thousand reported cases of diphtheria. This is an average throughout the year of 10 per cent — ten fatal cases out of every one hundred reported.

RESULTS AS COMPARED WITH THE ANTITOXIN TREATMENT

The vegetable antitoxin, in my hands, has transformed diphtheria, an otherwise dangerous and malignant disease, into a benign and harmless affection, the proof of which I have been and am willing to demonstrate to any doctor anywhere and on any case of diphtheria.

MY METHOD OF TREATING DIPHTHERIA

In conclusion, let me give you a concise description of my method of treating diphtheria. In any case that there is the least suspicion of diphtheria I give a half dram dose of the Specific Medicine Lobelia hypodermically and repeat in from two to twelve hours, once or oftener, as indicated, until reaction sets in, which means a return to health.

The drug may be used as it is or it may be filtered through ordinary filtering paper; the latter method I have adopted. For those who can gargle I give a half dram of argyrol in six ounces of water. This I have found to be most effectual from a bacteriological standpoint, as well as the most soothing to a sore throat.

Systemic remedies I give according to specific indications. A prescription most often used by me is:

Specific Medicine Aconite, gtt. 1-4; Specific Medicine Belladonna, gtt.

1-6; Specific Medicine Phytolacca, gtt. 10; Specific Medicine Sarracenia, drs. 2; water, q. s. ad. ozs. 4.

Directions: One teaspoonful every two or three hours.

By experience I have found the hypodermic injection best borne by the patient when injected anywhere on the trunk, abdominal parietes, the back, and thighs.

As to my theory about the action of this remedy it is briefly stated. I consider it fully the peer of all stimulants of the vascular system, not only in diphtheria, but in any infectious disease, equalizing, so to speak, disturbed circulation. If there is high pressure it acts as a sedative, and if there is low blood pressure it stimulates, but in any case its secondary action is that of a cardiac tonic.

When used as here described lobelia is a prompt and most reliable remedy in apoplexy, epilepsy, or any condition where the cerebral circulation is disturbed. In collapse due to anesthesia it is unsurpassed; likewise in pneumonia. In diphtheria I believe it has a specific antitoxin property.

This, Fellow Members, is my case. I hope that I have made my purpose clear, and I thank you sincerely for your kind attention.

STRAMONIUM AS SEEN BY ITALIAN EYES

BY WILLIAM S. WAUGH, A.M., M.D., SALT LAKE CITY, UTAH

Quite rarely our profession develops a therapist. Diagnosticians are plentiful, every sizable city developing some, and every medical college a coterie. Surgeons rival the leaves of leafy Vallambrosa in their multitude; but few generations develop more than a single really skilful clinician, so far as the scientific application of drugs is concerned.

Italian medicine has to her credit an unusual number. Senator was a skilful and scientific therapist; Cantani a leader in this work, while Semmola, Ruatta, Bosetti, Plevani, Bozzolo, Silva, Albertoni, Guareschi, Della bella, Voraglia, Lueirolo, Maragliano, Graziadei, Mingazzini, Guastalla, Puricelli, and a host of others have contributed observations of inestimable value to therapeutics. Only the general neglect of drugs has prevented these names becoming familiar to our ears.

Among modern Italian therapists none better deserve our attention than S. Laurà, Professor Agrege, of the medical school at Turin, and from his writings the following data have been largely derived.

The stramonium of Europe is a habitant of moist places: in our cities it may be noted as an unsightly weed flourishing in waste places and uncultivated lots. Two alkaloids are derivable from it, daturine and stramonium. Most writers look upon daturine as identical with atropine, but their crystalization is different (Erhardt). Stramonium is yet to be

investigated. It was first isolated by Tromsdorff. Daturine cannot be identical with atropine, for although the two display remarkable analogy, they are yet distinguished by many points of diversity. These have been especially demonstrated by the studies of Schroff, Lemaitre, and Bouchardat. In fine, the presence in the galenic preparations of a second alkaloid, of whose properties and effects we are ignorant, should suffice to condemn them. Ruatta especially condemns the syrup, and Laura adds an emphatic condemnation of all syrups of very active drugs — “as a continual source of accidents they should be banished from the pharmacopœias of all civilized nations.”

Daturine is not quite as powerful as atropine. It causes dilatation of the pupil and of the sphincters; in medium doses vasomotor spasm of the mouth and pharynx with dryness and burning (Burggraene). In small doses it is like atropine, a powerful anti-spasmodic. Given in very small doses repeated till the desired effect has been secured, neither daturine, hyoscyanine, nor atropine causes the terrible effects of the crude solanaceæ, neither spasm, furious delirium, hallucinations, constriction of the throat nor mania. A passing disturbance of vision is the only inconvenience, by no means so prolonged as that following the administration of stramonium.

The admirable comparative studies by Oulmont and Laurent show that daturine and hyoscyanine exert a special action upon the great sympathetic. In feeble doses they diminish capillary pressure, but augment arterial pressure, increasing also the pulse rate. In large and toxic doses these effects are reversed. Both alkaloids accelerate respiration, but hyoscyanine especially regulates the heart action. Both are rapidly eliminated. The mydriasis is due to excitation of the great sympathetic.

Fano recommended daturine in certain examinations of the eye, especially in vasculoplastic keratitis with myosis. Laura also preferred daturine in the treatment of epidemic iritis and in certain dangerous specific irites.

In general, the therapeutics of daturine is that of atropine. But the former is to be selected when the patient shows an idiosyncrasy against atropine, which is badly tolerated, inducing troublesome symptoms when as yet the doses are too small to afford the desired remedial results. With children also, especially very young and delicate infants, daturine is preferable.

Daturine is best given by the mouth, one granule, gr. 1-134, every quarter, half, one, or more hours, as the case demands. Like atropine and hyoscyanine, the first notable effect is dryness of the mouth, which precedes mydriasis and flushing of the face, and is the signal to give the doses less frequently. It is best to postpone the succeeding dose until the dryness has ceased. To children daturine may be given by Professor

Shaller's rule — one granule for each year of the child's age, and one more, in twenty-four teaspoonfuls of water, one teaspoonful of the solution being the dose, to be repeated as with adults. The solutions should be prepared at the bedside and renewed each day, to avoid deterioration and loss of accuracy in dosage.

For some years the medical profession has followed Merck's dictum, that there are in the mydriatic solanaceæ but two alkaloids, atropine and hyoscine, and that the others, hyoscyanine, daturine, mandragorum, scopolamine, etc., were simply mixtures of these. The discovery of another alkaloid, atroscine, as yet known only as a powerful impurity contaminating the official alkaloids, shows this to have been an error. The remarkable divergence between hyoscine and scopolamine shown by the statistics relative to their application with morphine as anesthetics, adds to the doubt, and confirms the view, that chemical identity of composition cannot be assumed as predicated identity of physiologic or therapeutic action. This has always been understood, as even substances believed to be elements, like phosphorous, may appear in forms showing widely differing action on the human system and its functions. The yellow, white, and black forms of phosphorus are highly poisonous, the red is apparently inert.

It is not safe to take anything for granted in medicine, but the truth should be ascertained, yes, proved beyond the shadow of doubt, by complete lines of experimentation extending through the entire chain, on animals and healthy human beings, and the final decision only made after complete and unprejudiced trials at the court of last resort, the sick-room. As Laura says, "One can draw no sure conclusions from animals to man, for if on the one side there are anatomic and physiologic analogies, the disparities are no less numerous or great, without speaking of the enormous distance that separates the organic activity of the brute from that of man. Experiments on healthy men are ever doubtful, incomplete, and insufficient in themselves alone to show the *therapeutic* properties of any remedy. For drugs do not act in the same manner on a pathologic organism as upon a physiologic, and the organism does not respond in the same way, the resistance being different." As every physician knows, doses may prove curative in disease that would prove fatal in health.

The contemptuous dismissal of all clinical experience as worthless, as compared with laboratory investigations, should be stopped. The latter deal with precise, unvarying *dead* conditions. We do not meet these in the sickroom, and hence the conclusions reached in the laboratory have only an indirect and relative applicability to our clinical work. Good observers all over the land have found in our native plants remedies capable of doing good service when directed wisely, by enlightened intelligence. It is true that most of our observations as recorded in the texts on therapeutics were made many years ago, and the collateral sciences have made much

progress since. Organic chemistry has given us pure and certain remedies from these valuable plants; we have developed a new physiology, for which we are especially indebted to Sajous for collecting and systematizing the work done on the internal secretions; we have made many notable advances in our knowledge of pathology, and in the light of all these advances we believe the duty is imperative that we make a restudy of our materia medica. Believing this, you may judge how welcome is the excellent work being presented through the pages of the JOURNAL OF THERAPEUTICS AND DIETETICS. Every practising physician should seek to support and participate in this important work.

A STUDY OF THE TWELVE TISSUE REMEDIES

By JOHN WILLIAM FYFE, M.D., SAUGATUCK, CONN.

NO. IX. NATRUM MURIATICUM — SODIUM CHLORIDE

It has been clearly demonstrated by competent investigators that the chloride of sodium promotes the activity of tissue change and increases the excretion of urea. It acts upon the blood, the lymphatic system, the mucous lining of the digestive tract, and the spleen.

In chronic diseases affecting the glands, bowels, and skin natrum muriate frequently constitutes a medicament essential to a successful treatment. In Addison's disease, when nutrition is greatly impaired and there is tension and heat in the region of the kidneys, as well as when there is marked mental and physical prostration, this agent is often of value, and in anemia when the blood is thin and watery it is deemed a remedy of some therapeutic power. In arthritis it has been used with advantage, and in synovitis much benefit has been derived from its exhibition. Asthma, when there is a profuse frothy mucus discharge, also comes within its relieving power. When there is a rapid emaciation of the throat and neck, and especially when the complexion is sallow, and the child has an old and anxious look, a place may be found for the chloride of sodium in the treatment of children. In "brain-fag," accompanied by sleeplessness and gloomy forebodings, it is often useful, and in chronic cases of chorea it is used with some success.

In chronic bronchitis and bronchial catarrh, with a discharge of watery and clear phlegm, it constitutes a remedial agent of considerable value, and in catarrhs and colds, when there is a watery, transparent, and frothy discharge, its action is promptly corrective. In the opinion of Dr. George Herring, "it is almost infallible for stopping a cold commencing with sneezing." In many cases when there is an excessive watery secretion it constitutes a very good cough medicine.

In the delirium which often occurs in acute diseases accompanied by

starting of the body, wandering and muttering, its action is markedly quieting, and in delirium tremens it exerts an influence which is often controlling in character.

"Delirium occurring in any case from whatever cause, with a slimy, frothy appearance of the tongue with watery secretions, will be relieved by this remedy. This indication is the 'keynote' for this remedy: A case in point is the following: Mr. E. A. had delirium tremens with the above conditions (and most of them do) in which our ordinary remedies seemed to be of no avail. He was relieved in a short time by five-grain doses of natrum muriate, 3x. The next day the patient seemed in good condition and had slept well the night before. We see the provings of this theory in the action of one half grain doses of pilocarpine in these conditions given hypodermically. This will sober up these old drunkards quickest of anything that I know of, but it is too severe and not curative. This remedy produces such profuse diaphoresis, equalizing the water in the system, which gives the immediate relief, but only acts for the time being. This proves the theory of the unequal balance of the water in the system. The next case of delirium tremens you have, study it carefully for these conditions, and if it is 'too utterly too too' that it cannot be managed without having several to hold the patient or having him tied, try the pilocarpine treatment, which will sober him up in a way that will surprise you, and then follow it up with the natrum muriate to get the system in perfect condition — minus the whiskey." (Kinnett.)

In dropsical swellings of any of the subcutaneous areolar tissues of the body the chloride of sodium may well constitute a part of the treatment, and in anasarca it is deemed a remedy of some merit. It is also a very efficient agent in indigestion, and is especially indicated when there is water gathering in the mouth, with vomiting of clear, frothy water, or stringy saliva. In chronic inflammation of the salivary glands, associated with excessive flow of saliva, it is often useful, and in chronic swelling of the lymphatic glands it exercises a reducing influence.

Natrum muriate is often an indicated remedy in the treatment of children during dentition, and is especially called for when there is an excessive dribbling or flow of saliva. In diarrhea, with watery, slimy, or frothy stools, it is also of considerable usefulness.

"Natrum muriate is a very valuable remedy in chronic diarrhea of children. The emaciation of the neck, the greasy appearance of the face, and the peculiar desires and aversions furnish the leading indications for this remedy in this particular disease." (Laird.)

In diabetes mellitis, when the thirst seems almost unquenchable, or when there is great debility and despondency, the chloride of sodium should be included in the treatment. It has been used with advantage in various wrongs of the kidneys, and at least one writer claims that it will cause a decrease in the amount of albumin, an increase in the amount

of urea, and a very marked increase in the quantity of chlorides eliminated. He thinks it should constitute a part of the treatment of all cases of Bright's disease.

In inflammation of the mucous lining of the throat, especially when the parts are covered with transparent mucus, the chloride of sodium is a useful remedy, and when the uvula is relaxed or inflamed its action is corrective. It has some success in chronic enlargement of the tonsils.

In sunstroke *natrum muriate* should never be neglected, for it is one of the most efficient remedies that can be employed in that alarming state.

"I was called to see Mr. R. L., a young man suffering from sunstroke. He had been working in the harvest field. When I arrived, found him lying in the shade of a house, where he had been carried on a pallet, unconscious, twitching of the muscles, face flushed, labored breathing, and rapid pulse. I at once determined to rely on *natrum muriate* alone, and gave him ten grains of the 3x trituration dry on the tongue every fifteen minutes. I remained an hour, when he could swallow liquids, and then gave him the same dose in solution every hour. He slept well that night. The next day he came to the village, and the next day went to work again. No other medicine was given him." (Kinnett.)

Natrum muriate has been employed with much success in chronic gonorrhea, and is especially efficient in cases characterized by the persistent "morning drop." In dysmenorrhea when the menses are scanty and dark, especially when preceded by frontal headache, the chloride of sodium exercises a modifying influence, and in hysteria when menstruation is delayed, and there is great debility, it is employed with gratifying results.

The following indications, taken from Fyfe's *Modern Materia Medica*, suggest the lines along which this preparation of the chloride of sodium is most likely to prove useful: "Chronic nasal and pharyngeal catarrhs, with loss of smell and taste; coryza with clear, watery discharge, or alternating with dry coryza, with loss of smell and taste; tongue broad, pallid, or puffy, with a pasty or slimy coating; follicular catarrh of the pharynx; sensitive, easily bleeding, ulcerated gums; sore throat, with transparent mucus covering the tonsils; glandular swellings; indigestion, with vomiting of clear, frothy water, or stringy saliva; menses profuse, with slimy, corroding leucorrhea, and watery, irritating discharge after or between periods; pleurisy, when serous exudation has taken place; chronic rheumatism of the joints; paretic weakness in the various muscular groups of the trunk and limbs; restlessness and twitching of muscles; profuse night sweats; blisters, blebs, and watery vesicles on the skin; colorless watery vesicles, forming into thin scabs or crusts; dropsy and puffiness of the tissues; serous exudation and serous secretions; catarrhs of all mucous surfaces."

The dose of the third trituration is from five to fifteen grains, but it may be prescribed as follows: \mathcal{R} *Natrum mur.*, 3x, gr. xx to \mathfrak{z} i; water, \mathfrak{z} iv. Teaspoonful every hour.

PHYSICAL THERAPY

FIRST STEPS IN MEDICAL ELECTRICITY

BY HERBERT MCINTOSH, A.M., M.D., BOSTON, MASS.

Continued from page 20

Figure 57 represents a wall plate made by the Victor Electric Com-

pany. Such an arrangement connects with the commercial mains and illustrates many of the principles explained in this chapter. It furnishes direct, interrupted coil, sinusoidal, cautery, and diagnostic lamp currents with milliamperemeter, volt regulator, direct current interrupter, and pole changer.

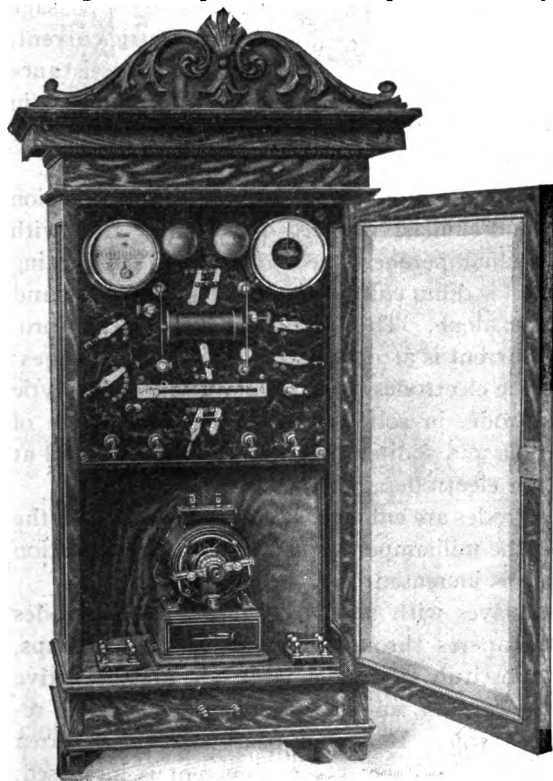


FIG. 57.

CHAPTER VIII

ELECTRODES. RHUMKORFF COILS. INTERRUPTERS

If an ordinary disk electrode (Fig. 58), consisting of an insulating

handle provided with a socket to receive the tip of a stranded copper wire conductor at one end and a disk of brass or copper at the other, be applied to the skin, a

similar electrode being applied to another part of the body, when the circuit is closed a disagreeable and painful sensation is experienced.

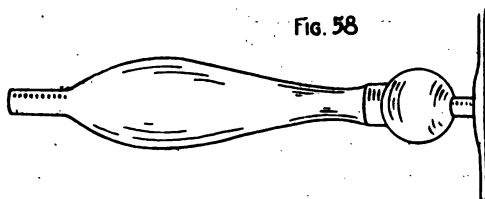


FIG. 58

On the other hand, if sponge electrodes are applied to the skin in a similar manner, it is observed that the same amount of current can be passed into the tissues with little or no sensation, especially if the sponges



Fig. 59.

be first moistened (Fig. 59). It is thus evident that unmoistened skin opposes a marked resistance to the passage of the electric current, and that the resistance is reduced and pain

largely inhibited by the use of an electrode that moistens the surface of the body, and makes close apposition with the area under treatment.

If now two sponge electrodes are moistened with a saturated solution of sodium chloride in water, and similarly applied, it is found that with the same pressure a higher milliamperage is recorded. The conducting power of a saturated solution of sodium chloride in water is three thousand times as great as that of water alone. The use of salt, however, to promote the conductivity of the current is attended with two disadvantages: namely, first, it oxidizes metallic electrodes, and, secondly, the electrolytic decomposition of sodium chloride, in solution, with the appearance of chlorine gas at the positive pole and sodium at the negative is painful at the points of application of the electrodes.

In like manner, if the electrodes are enlarged it is found, that, with the pressure remaining the same, the milliamperage is increased in proportion as the surface of the electrode is increased.

If, again, we provide ourselves with two large moistened electrodes and pass a current of ten milliamperes through the body, we shall, perhaps, note but little pain. If we substitute a smaller electrode for the active pole we shall note an increase of pain, and if the electrode be much reduced, the pain may be unbearable. It thus appears that as the area of the electrode is decreased and the density of the current is increased, pain is increased.

From these experiments we may infer that an electrode designed for ordinary therapeutic application to the skin should be made of material that easily adapts itself to inequalities of surface, that it should be moistened with a fluid that readily carries the current, and that it should be as large as possible relatively to the surface over which it is placed.

When it is impossible to use large electrodes at both poles, the so-called indifferent electrode may be large, and the active electrode adapted to the work required.

Formerly sponges fastened to metal disks were generally used for

therapeutic applications to the skin. Sponges, however, are not sanitary, and should be abandoned. When small metal disks are used they may be covered with absorbent cotton, applied to the surface and wrapped around the shank. This is then moistened with soap and thrown away after use.

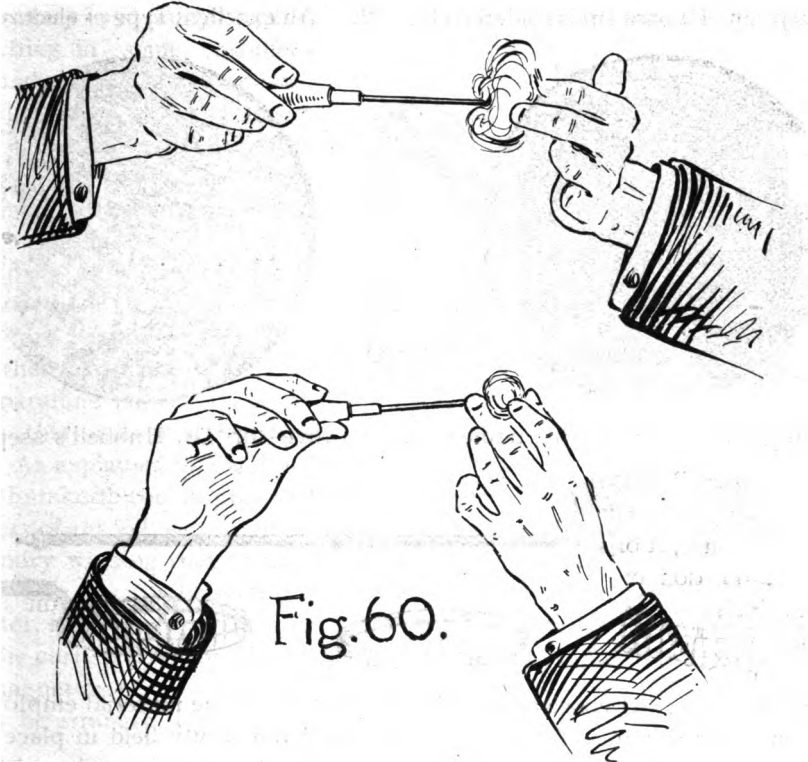
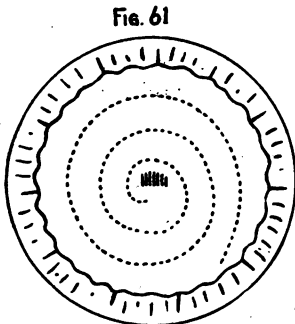


Figure 60 represents the method of applying cotton to the disk.

Larger electrodes may be made after the pattern suggested by Massey. A coil of No. 20 soft brass wire is sewed upon a circular piece of cotton cloth, the concentric coils being about one half inch apart. Six or eight layers of absorbent cotton are then piled on the wired side, and covered with a piece of cotton cloth which is sewed to the edge of the back of the pad. These pads may be made in any size desired, and should be sterilized after use. (Fig. 61.)



The electrodes made after the pattern of Morse are admirable in design. They consist of a back of rubber cloth covering a piece of finely meshed wire to which a socket to receive the cord tip is soldered. Beneath this is a layer of asbestos which is held in place by a piece of coarse cloth stitched to the edges of

the rubber back. These may be readily made by nurses, and should be frequently sterilized.

In still another type of easily extemporized electrodes a layer of spongio-piline is fastened to a piece of block tin to which a socket for the reception of a cord tip is soldered (Fig. 62). An excellent type of electrode

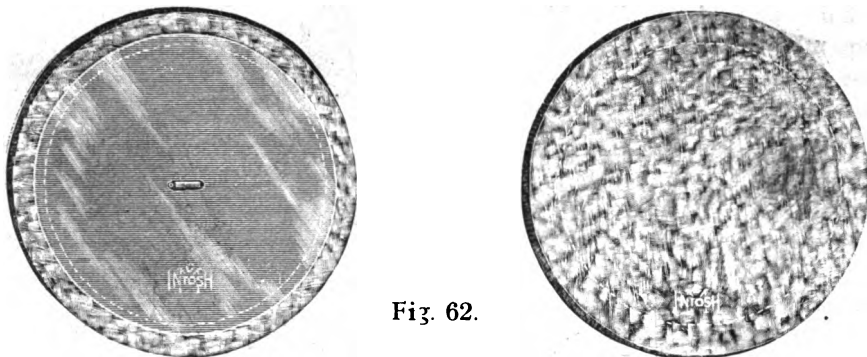


Fig. 62.

is represented in Fig. 63, named after its inventor, Dr. Hubbell's aseptic

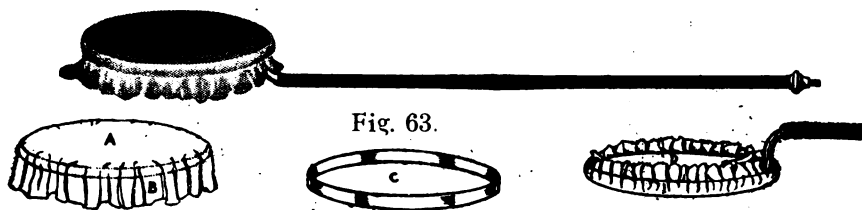


Fig. 63.

pad electrode. It consists of a disk A, over which the material employed is smoothly spread. This is then stretched and firmly held in place by the ring C. The handle is next clamped on the back of the pad, as in D. The cotton or other material employed is thrown away after each treatment.

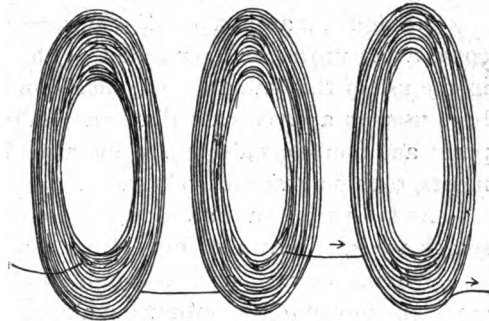
Rhumkorff's Coil.— In Chapter III, on the physics of coil currents, a brief reference was made to the Rhumkorff coil, which adds to the efficiency of an ordinary induction coil by the use of a condenser. It now becomes necessary in view of the extensive use of these coils in X-ray and high frequency work to consider them somewhat more in detail.

Rhumkorff's coils are classified according to the length of the spark which they are capable of giving between the prime conductors, as, for example, a ten inch, twelve inch, or eighteen inch coil. The primary winding consists of two or three layers of thick copper wire to enable it to carry heavy currents without heating. A switch arrangement is provided to connect its layers in shunt or series, so as to vary the self-induction to suit the pressure of the source from which the current is derived. Instead of a solid bar of iron, a finely laminated core is used in order to avoid focal or eddy currents which heat the core, dissipate energy, and tend

to retard the sudden demagnetization upon which the coil's efficiency largely depends.

The primary coil is enclosed in a thick vulcanite tube upon which the secondary coil is wound. The diameter of the wire employed in the secondary is much smaller, and the length enormously greater, reaching in some instances as high as ninety or one hundred miles. In smaller coils the secondary wire is wound in layers, in larger coils it is wound in sections, as shown in Fig. 64. These may number as many as seven hundred or eight hundred, and are separated from one another by disks of ebonite or paraffine paper. In some coils this number is still further increased.

FIG. 64



As explained in Fig. 20, Chapter III, on the physics of coil currents, a Rhumkorff coil is provided with a condenser, consisting of alternate sheets of tin foil, separated by paraffine paper, and so connected with the primary winding that at the break of the current the extra current may pass into the condenser instead of leaping across the gap of the interrupter, heating it and retarding the decay of the current, and at the make of the current pass back into the primary coil, and by its reverse direction demagnetize the core and promote rapidity of action. The condenser may be arranged so that the whole or a part may be used.

To be continued.

ENOUGH IS ENOUGH

BY CHARLES E. BUCK, M.D., BOSTON, MASS.

THOSE of us who are using nature's forces constantly in our endeavors to relieve human suffering, are — or should be — more and more aware of the fact that these forces have a very subtle and potent method, clearly their own, of manifesting themselves. And again that these same forces do not always demonstrate alike in all cases.

In view of this fact it would seem — all things considered, that a very conservative policy should be followed at all times in their use. It is not

a safe corollary to follow that if a little is good, more is better, rather should we reason that if a little is good *just enough* is *sufficient* and in the general run of cases, let it rest there, lest our over-enthusiasm may cause us to *do harm* rather than *good* purely through the *visinertia* of the remedy.

Generally speaking this is the case in the use of all therapeutic remedies, and especially so in the use of electric, and particularly so with the X-ray modalities.

No doubt many have had the same unfortunate experience that has come as an unwelcome reminder, to the writer, that it is wise to *go slow* in the use of this valuable but uncertain remedy, and that more force has been used in a given case than was really needed to accomplish the purpose; and doubtless also many operators have endeavored through experiments, to find a safe method that can be followed, with efficiency.

As the writer has had occasion to do some of this very important research work, it may not come amiss to let some one read his results.

Waving details, and assuming that the ten-plate Static machine is sufficient to excite the ordinary make of tube in such cases, I have found that a *low, soft tube* is the safest one to use, and that it is not necessary to use the ordinary spark gaps attached to the primaries of the machine.

If the tube is too high a very simple method of reducing it is to place it in a slow oven in a wooden box and bake it for three or four hours and allow it to cool down with the oven, not removing until thoroughly cold.

In attaching the leaders to the machine do so direct to the primaries and have these near enough to spark about two or three inches, and after placing the tube, start the machine and gradually separate the primaries — in and out — until the tube lights. If it does not light at once hold the wire spray over the negative end of the tube so as to form an outside circuit just for a moment, and little trouble will be experienced if the tube is perfect. The tube must be fairly warm and this may be accomplished by the use of an alcohol lamp held under it for a few seconds if necessary. When the tube lights, separate the primaries just far enough to operate it *quietly*, without any *hissing* from escaping electricity from the leaders, and this will be all the force that is necessary for average cases, and may be used in sittings of twenty to thirty minutes with safety, and all the efficiency that one may expect from this form of treatment.

This treatment and strength has proven very satisfactory in many cases of early tubercular lesions, where the combination of ozone and light are needed. The tube is placed *in front* of the patient in these cases, about eight or ten inches from the body opposite the pulmonary lesion, and usually given for about half an hour.

From this strength of tube the light and ozone are of quality and strength that can be safely borne for the required time and these sittings may be given three times a week.

THERAPEUTIC NUGGETS

SOME REMEDIES THAT ARE USEFUL IN PNEUMONIA

Spec. Med. Aconite.—When your patient has a pulse that is small and frequent, with a hot and dry skin, this drug will be useful. Add Gtts. v to Aqua ℥iv, and give in teaspoonful doses every one or two hours.

Spec. Med. Asclepias Tuberosa.—This agent will be called for where the pulse is strong and the skin moist, especially if there is pleuritic pain, which is aggravated by movement. Dose. Gtts. x to xx, Aqua ℥iv, mix. Give teaspoonful every one or two hours. This remedy can often be combined with the aconite to good advantage.

Spec. Med. Cactus Grandiflorus.—When your patient presents a heart where the action is impaired and a nervous condition that is bordering on hysteria, with a sense of oppression in the chest, this remedy should not be forgotten. Dose. Gtts. x to xx, Aqua ℥iv, mix. Give teaspoonful every two or three hours.

Spec. Med. Eupatorium Perfoliatum.—Where you have a full pulse with dyspnea, pain in the chest, and a hot, moist skin, combined with the frequent passage of turbid urine, do not forget this agent. Dose. Gtts. v to xx, Aqua ℥iv, mix, and give teaspoonful doses every one or two hours.

Spec. Med. Rhus Toxicodendron.—When there is a short, sharp pulse, a strawberry tongue, burning pain in the chest, a pinched expression of the face, and dribbling, scanty urine, you should use this remedy, and get good results. Dose. Gtts. v to x, Aqua ℥iv, mix and give a teaspoonful every one or two hours.

Spec. Med. Veratrum Viride.—This remedy should be used whenever you meet the full, bounding pulse, with increased arterial tension and marked throbbing of the arteries. Dose. Gtts. v to x, Aqua ℥iv, mix. Give in teaspoonful doses every half hour to every two hours.

Nitroglycerine.—Whenever you need a quick heart stimulant to overcome a weak heart, especially if there is much pallor of the tissues, this drug will be found useful. Dose. Give $\frac{1}{100}$ of a grain, hypodermically is best, every hour, or in desperate cases every half hour, until the heart improves.

Ammonium Carbonate.—When your aged patients have a severe cough with scanty, viscid expectoration, particularly if the cutaneous circulation is diminished and the skin pallid and cold, with a tendency to collapse and syncope, the ammonium carb. in doses of $\frac{1}{10}$ to $\frac{1}{2}$ grain every hour will be a part of good treatment.

Spec. Med. Bryonia Alba.— Your patient has a flushed right cheek, with severe pleuritic pain that is increased by coughing, that cough being of a hacking nature. Remember this remedy and always give it either combined with your fever medicine or else in alternation with it, and the results will be pleasing. Dose. Gtts. x to xx, Aqua ℥iv, mix and give a teaspoonful every half hour to every two hours.

Ammonium Muriate.— If the secretion is diminished, a sense of heat in the throat, with redness of the surface that is easily effaced by pressure, and not much cough, this drug will be valuable. Dose. ℥i, Aqua ℥iv, mix and give a teaspoonful every two hours.

Spec. Med. Lobelia Inflata.— Whenever your patient complains of fullness and oppression in the precordial region, with a full and oppressed pulse, a broad and flabby tongue, combined with a loose cough and tenacious mucus, always administer the Lobelia. The preparation made from the seed is the best in these cases. Dose. Gtts. x to xx, Aqua ℥iv, mix and give a teaspoonful from every half hour to every hour. The more frequent dose is preferable.

Spec. Med. Sanguinaria Canadensis.— If the cough of your patient is of an irritating and tickling character, with a burning sensation in the nose and throat, and a sputa which is streaked with blood, the Sanguinaria will prove useful. Dose. Gtts. x to xx, Aqua ℥iv, mix and give a teaspoonful every one or two hours.

Spec. Med. Gelsemium.— If your patient presents a flushed face with bright eyes and contracted pupils, this drug should always be given. Add Gtts. x to xx to Aqua ℥iv, and direct that teaspoonful doses be taken every hour until the indications of irritation are removed.

Spec. Med. Belladonna.— If, on the other hand, you see a patient whose eyes are dull, pupils dilated, with blueness of the face and extremities, and inclined to sleep most of the time, you should give the belladonna. Add Gtts. v to x to Aqua ℥iv, and give teaspoonful doses every hour.

Strychnine.— This drug will frequently find a place in the treatment of pneumonia, but should never be used as a routine remedy. Its special and valuable use is that of tiding your patient over a period of great debility, and should be withdrawn when that has been accomplished. It may be given in doses varying from one one-hundredth to one thirtieth of a grain, and its frequency of repetition be guided by the effect produced. The smaller dose more frequently repeated will give the best results.

Spec. Med. Echinacea.— If you are met by symptoms of systemic poisoning, characterized by profuse ill-smelling discharges, offensive breath, with dusky-colored membranes with a tendency to gangrene, the echinacea should not be neglected. Add from Gtts. x to ℥i, to Aqua ℥iv, and give in teaspoonful doses every two or three hours.

DEPARTMENT OF DIETETICS

THE DIETETICS OF SUGAR

BY J. A. DENKINGER, M.D., BOSTON, MASS.

SUGAR IN DIARRHEA

In as much as sugar (and this applies to all forms of sugar) when ingested in excess or given under unfavorable conditions is very liable to undergo abnormal fermentation and provoke flatulence and diarrhea, sugar is not a food to be used *ad lib* in diarrhea; on the contrary, its use should be restricted, or sugar cut out altogether, in all cases of diarrhea, especially the so-called fermental diarrheas.

Fortunately, the insoluble carbohydrates or starches, which as we have seen are usually ingested in very large quantities without undergoing abnormal fermentation and giving rise to diarrhea, are most useful in the dietetic treatment of this condition. Cereals and other starchy foods, such as rice, barley, arrowroot, and sago, which contain much mucin, made into soups, or still better given in the shape of thick, unsweetened gruels (or sweetened with saccharin) are of great benefit in the treatment of diarrhea. These gruels may be prepared with either water or milk. Cellulose being a mechanical irritant, cereals and other starchy foods containing much cellulose should be rigidly excluded in diarrhea.

SUGAR IN CONSTIPATION

For reasons already given, sugar, when given in quantity, tends to promote peristalsis and to produce more or less looseness of stools. Some sugars have the reputation of being more laxative than others. Holt states that "The use of cane sugar or milk sugar seems to have little or no effect in constipation, if anything it is increased thereby." On the other hand, Jacobi extols cane sugar as a remedy in the constipation of infants, and most authorities, including Zweig, mention lactose as having marked laxative action and in proper quantity as producing liquid stools. Holt recommends brown sugar or the malted foods in infantile constipation, and so does Kerley. Honey is also considered as being specially laxative. Upon the whole, the coarser forms of sugar, which have not undergone the various processes of refining, such as the common "brown" sugar, maple sugar, and molasses, are more laxative than the highly refined white sugar or the animal product lactose. Next to honey and the coarser forms of sugar mentioned, the sugar most likely to promote peristalsis and to produce looseness of stools *when ingested ad lib* is maltose and (but to a lesser

degree) dextrose. Hence the reputation of the malted foods in the constipation of infants. I shall have more to say on this subject when I come to consider the subject of sugar in infant feeding.

SUGAR IN FEVERS

One of the most important principles in the feeding of fevers is to maintain or conserve the albumen content of the organism. Both fats and carbohydrates are what is known as proteid spacers, i.e. both protect — save the albumen of the body, but the latter more so than the former (100 fat calories can replace only 5.4 albumen calories, while 100 carbohydrate calories can replace 15.4 albumen calories). In the opinion of most dieto-therapists the diet of fever patients should contain a liberal supply of carbohydrates, both starches and sugars, but on account of the danger of abnormal fermentation in fevers, concentrated solutions of sugar should be avoided. Preference should be given to solutions of maltose, dextrose, lactose, or honey in solutions, not much if any stronger than the lactose present in milk.

SUGAR IN TYPHOID FEVER

Sugar being easily digested and assimilated and its nutritive properties more readily available than other forms of carbohydrate or fat, is one of the most useful foods in typhoid fever, provided it is given in moderation and in proper form, but any excess of sugar or sweets should be avoided on account of the danger of fermentation and resulting flatulence. Typhoid fever patients are often intolerant of very sweet food, for which reason the amount of sugar or the strength of the sugar solution should be kept within reasonable limits or some agreeable flavor added. Maltose, dextrose, or honey are often relished when cane sugar and lactose are refused. During the convalescent period, cold beverages or frozen dishes rich in carbohydrate material, such as ice cream or sherbet, are much relished.

SUGAR IN RHEUMATISM

Most authorities agree that it is best to keep sugars low in rheumatism, and it is well known that the history of a very large percentage of rheumatic patients shows more or less gastric derangement, in which superacidity seems especially frequent. Solis-Cohen recommends "cutting down carbohydrates to the lowest point consistent with the maintenance of nutrition and substituting fat in all cases of rheumatic fever. This is not only to avoid fermentative processes in the gastrointestinal tract and their undesirable consequences on the body fluids in general, but also because patients of the rheumatic diathesis exhibit a distinct failure in carbohydrate metabolism." On the other hand, it is well known that *some* rheumatic patients *do well* on sugar.

SUGAR IN GOUT

There is much difference of opinion amongst authorities as to the use of sugar in gout. Haig, Roberts, and Harley allow both sugar and starch *ad lib*. On the other hand, Cantank, Pfeiffer, and Ebstein exclude sugar, the latter prohibiting it even in coffee and tea. Moritz recommends "cutting down" starches and sugars in both food and drink. Ortner forbids sugar and sweets "and materially diminishes the quantity of unsweetened farinaceous foods, noodles, macaroni, rice, dried peas and beans, the latter two because they are rich in nucleins. Minkowski does not consider carbohydrates as especially harmful, but recommends the exclusions of cakes and sweets on account of their greater tendency to fermentation. Luff limits starchy foods in gouty individuals subject to gastric hyperacidity (hyperchlorhydria), and when intestinal fermentation and putrefaction occurs, as evidenced by a sense of discomfort after meals. As to sugar, he believes that it may do harm in cases of *fat* gouty persons or those who are prone to attacks of eczema or who suffer from glycosuria, but sees no reason to exclude sugar from the dietaries of *thin* gouty persons. On the contrary, he has found that gouty thin people can take sugar with absolute impunity. To my mind, starch being more slowly absorbed, and hence less likely to undergo abnormal fermentation, is less liable to cause trouble in the gouty than sugars. In the case of the Japanese and other races living largely on a starchy carbohydrate diet, but little meat, gout is almost unknown. While it is not proven that sugar causes gout, sugar and sweets generally are very liable to upset the stomachs of the gouty. On account of its tendency to ferment with the production of irritating acids and gases sugar should be taken very sparingly by the gouty and only after thorough mastication and insalivation. In place of bread, it is best to give crisp toast or zwieback, as this requires thorough mastication and insalivation.

SUGAR IN DISEASES OF THE SKIN

From the fact that the excessive ingestion of sugar tends to fermentation and the production of an excess of irritating acids in the intestines, sugar and sweets generally are best kept low in eczema, acne, urticaria, and similar skin diseases, especially in the case of infants and children.

SUGAR IN OBESITY

Sugar being one of the most powerful fattening foods, its use and the use of carbohydrates in general should be restricted as much as possible in this condition. Malted foods, malt liquors, and such sugars as maltose and dextrose are particularly fattening.

SUGAR IN THE DIET OF THE UNDER-NOURISHED AND IN TUBERCULOSIS

Both on account of its fat-forming properties as well as because it

supplies heat and energy in very digestible, assimilable, and readily available form, sugar should be liberally used in the treatment of the undernourished, in cases of marasmus, thin, delicate children and growing boys and girls below the normal in weight, as well as the aged and convalescents. Chauveau reports highly gratifying results from feeding sugar to fatten emaciated insane patients. The sugar was administered in amounts of from two hundred to five hundred grams per day in addition to the ordinary diet. He found that some patients gained as much as one third of their weight in the course of a few months. The best results were obtained when the sugar was given in milk. It was always well tolerated, and never produced glycosuria. Tuberculosis is another condition where liberal administration of sugar has proven very beneficial.

The Verona hospital reports most excellent results from sugar as a means of superfeeding tuberculous patients. From one hundred to five hundred grams of sugar were added to the daily diet. Even on as little as one hundred to two hundred grams a day, the patients frequently gained from sixteen to thirty pounds or more in two or three months. It was not only tolerated, but well relished by the patients, and no dyspeptic disturbances or intestinal fermentations were ever noticed that could be attributed to the sugar. In some cases it was necessary to disguise the flavor with coffee, or administer it with some bitter tincture. The forms of sugars most suitable are maltose and dextrose and honey, and to a less extent, cane sugar and lactose. The various malted foods given in milk, or malted milk, and the dry malt extracts are especially fattening, are generally well borne, and should always be given a trial when it is desired to increase weight.

SUGAR IN HEART DISEASE

Sugar is not contraindicated in cardiac disease, certain authorities notwithstanding, but it should be kept low or given well diluted, as found in milk, where there is any tendency toward fermentation on account of danger of excessive gas formation, which by pressing against the diaphragm is liable to disturb cardiac action.

SUGAR IN RENAL DISEASE

Carbohydrates, sugars included, have been freely and successfully used in diseases of the kidneys, on account of their complete combustion and small residue, as well as on account of the ease with which the sugars are digested and assimilated, but the ingestion of much sugar or very strong solutions of sugar should be avoided on account of their diuretic effect. It is best given in concentrations not exceeding the amount of sugar present in milk; plain milk or variously modified milk or malted milk being upon the whole the ideal foods in most forms of kidney disease, nephritis not excepted.

To be continued

THE MEDICAL ROUND TABLE

DRUG THERAPY

A CASE OF EPILEPSY

EDITOR JOURNAL OF THERAPEUTICS AND DIETETICS:

I have a very stubborn case of epilepsy in which the bromides do not do much good. Will you kindly tell me where you get your *verbena hastata*? I cannot find it listed in any of the drug house catalogues.

The case I refer to is a female, age thirty-nine, married about fifteen years, and now a widow, no children, no miscarriages. The attacks began about six years ago, and came at long intervals. She took nothing for them until about a year ago. Now she has an attack about every ten days, and sometimes light attacks between these, in which she does not lose consciousness. Bowels regular, appetite good; no history of any injury to the head or cord; menstruation is regular. I stopped salt in diet some time ago. Can you give me any suggestions?

A. A. HESSELL, M.D.,

Put-in-Bay, Ohio.

All my experience with *verbena* has been with the concentration, which is put up in one third grain tablets by the Abbott Alkaloidal Company, Chicago. Each tablet is said to represent ten grains of the crude drug. A fluid extract is made by the Wm. S. Merrill Company, Cincinnati. I do not think there is any specific medicine made.

With reference to the case, first look out for every possible cause of reflex irritation, such as intestinal parasites, spinal or ovarian tenderness, autointoxication from any cause, eye-strain, and anything else that is suggested. Have the urine carefully examined and note the significance of any abnormal constituents or undue proportions. When you find anything wrong, endeavor to correct it, for it may be the cause of the convulsions. You cannot expect success in treating epilepsy except by removing the causes so far as possible. Next regulate the diet and habits of life. See that she takes only a moderate amount of nitrogenous food — meat only once a day, at noon, and in small quantity; eats only three meals a day, and never heartily; a light supper always; uses no salt as a condiment, and as little salt in her food as she will be content with. Keep the bowels loose, or at least regular, and see that the liver is looked after. For this purpose my favorite is the old-fashioned triplex pill, but you may have something better. This isn't telling you

half the things you will need to do, but only making a few suggestions. Then as to the indicated remedy. Remember that verberna, or verbenin, is most likely to be helpful in those cases which are not benefited by the bromides. It looks as though your case might be one of these. Also, verberna is useful in cases having a reflex origin, as from worms, constipation, or overeating, menstrual derangement, masturbation, etc. If you decide on verbenin, begin with one tablet before each meal, and increase one tablet a day (not one before each meal) until she is taking about fifteen tablets a day. If she is very nervous, scullcap is a good symptomatic remedy. But do not mix too many things, and give the verbenin a fair trial. Do not expect to stop the attacks at once, but be satisfied with gradual improvement. If, however, she grows worse, it may mean a change of remedies. In that case, think of solanum. (See JOURNAL for March, page 178.) This is claimed to be of especial value in grand mal of idiopathic type without hereditary taint, and where the disease has begun beyond the age of childhood. So if you are unable to find any reflex causes, anything outside the brain itself, try solanin or solanum. I shall have to refer you to the article above referred to, and also to Prof. G. H. French's article on Verbenin in Epilepsy, on page 105 of the April number, for further indications and directions. If neither of these remedies help her, still do not give up. There are a number of remedies having a specific action in certain definite conditions which you should study up. And we have not said anything about the bromides, which are used more than all other remedies together, but are seldom curative and often hurtful.

CALCIUM SULPHIDE VS. THE "DOUBLE SULPHIDE"

EDITOR JOURNAL OF THERAPEUTICS AND DIETETICS:

I want to suggest to your readers that the next time they have a case in which they are accustomed to use calcium sulphide, they try "the Double Sulphide," made by Dr. Burgess, of Tennessee. I find it is as good as the best calcium sulphide, does not taste or smell badly, is a powder, keeps well, and can be dispensed in powder or capsules. Please report.

C. W. HUNT, M.D.,
Brevard, N. C.

We shall be glad to have any reader report his experience with this drug. Calcium sulphide is an invaluable remedy, but it is one very difficult to prepare so that it will keep well, and most of the preparations on the market are of little value — a fact which accounts for the favorable and unfavorable reports from different men.

ECHINACEA

EDITOR JOURNAL OF THERAPEUTICS AND DIETETICS:

I am much interested in echinacea, having used it in a few cases, and I should be glad of a little information from those who have used it more than I, as to their success and the class of cases it is best for.

DR. H. W. SWARTZ,
New Oxford, Pa.

Echinacea is one of the most valuable of all our newer drugs, and we throw out the request in this letter in the hope that some of our reader who have used it extensively will write an article on it, or at least a letter to the Medical Round Table, giving their experience. And we want to say right here that we will welcome replies and comments from any of our readers, to the letters and questions given in this department. The Round Table invites you all to take part in the discussion.

PHYSICAL THERAPY

Query: Will you tell me how I can remove warts, moles, and other excrescences by electricity.

They may be removed by a variety of methods. A flat steel needle may be attached to the negative pole of a direct current battery, the indifferent electrode saturated with sodium chloride solution, being applied to a contiguous portion of the body. The needle should then be introduced into the growth parallel with the skin in several directions, until the growth is detached or its nutrition destroyed. The current should be small—from 2 to 5 milliamperes—and much frothing should be avoided, or a disfiguring scar will be left, which is worse than the original condition.

An excellent method of accomplishing the same result is to employ a metal point placed in an insulating handle, and attached to the terminal of a high frequency coil. The discharge should be directed to the point to be treated, which blanches and turns dark. This is especially useful for sessile growths, and the amount of current employed can be readily regulated. Small flat moles may be quickly removed in this way. Moreover, scarring is less likely to result from this method. With either method some pain results, which may be controlled by applying a ten per cent solution of cocaine in guaiacol, and carrying it into the tissues by cataphoresis, using a current strength of from 1 to 3 milliamperes for four or five minutes. Instead of the guaiacol anesthetic a fifteen to twenty per cent solution of cocaine in water may be used by cataphoresis for a period of ten

minutes, with a current strength of 5 to 10 milliamperes. The skin in these cases should be first freed from oils by means of soap and water.

Query: "Port wine," or so-called "mother" marks, are very disfiguring. Can they be improved by electrical treatment?

Yes; electricity offers by far the best hope of relief to those suffering from these disfiguring marks. They are technically called nevi, and vary greatly in size. They are due to enlarged capillaries, veins, and arteries, and are usually covered with normal epidermis. They should be treated during infancy, when their removal can be effected by pressure, or the use of ichthyol in contractile collodion. The area should be daily painted with this mixture, and continued months. The pressure of the contractile collodion is chiefly responsible for the cure which ensues.

Where the nevus is elevated above the skin, the method above described is not so satisfactory. Here the needle is used to better advantage, and is employed as follows: a non-corrodible flattened metal needle of gold or platinum is attached to the positive pole and passed through the growth parallel with the skin. The student of the chapters entitled, "First Steps in Medical Electricity," will readily understand why the positive pole is chosen for this operation. The positive pole is a vasomotor contractor, and tends to check hemorrhage. For the intelligent use of galvanic electricity a thorough understanding of polarity is essential. Moreover, the use of a steel needle attached to the positive pole would result by metallic cataphoresis in permanently staining the tissues. The needle should be passed through the nevus again and again until the dilated tissues are destroyed. The operation may of course require several sessions. At the conclusion of each session the part is dusted with boric acid, and the dark crust allowed to drop off, as it will in about a week.

When, however, the nevus is made up of capillaries or small veins, it may be preferable to attach a steel needle to the negative pole. Here the vasomotor contractor action of the positive pole is not so much demanded, and the resulting scar is more readily absorbed than that which results from the action of the positive pole. The current strength required is from one to eight milliamperes.

These methods are also applicable to adolescent and adult life. Excellent results have, however, been secured in these cases by the use of the X-ray. The effect of the Roentgen ray is to inhibit nutritional process, more particularly those which are abnormal. These growths lie very near the surface and are therefore in excellent position to obtain the full effect.

DIETETICS.

IMPORTANCE OF MASTICATION OF FOOD.

Query: Is the thorough mastication of food really of such great

importance as has been recently taught by Horace Fletcher and other schools of dietetic faddists?

"Bolting" our food is undoubtedly the greatest dietetic sin of our people, and is responsible for more gastro-intestinal ills and their sequelæ than any and all other dietetic errors, "unsuitable" food included. Although physiologists and hygienists have for several generations preached eating slowly and masticating the food thoroughly, it remained for a clever and enthusiastic layman, Mr. Horace Fletcher, to restate the case in such a way as to command universal attention. We commend to our readers a careful reading of Mr. Fletcher's work, "The A.B.Z. of Our Own Nutrition," for a full and most able presentation of this important subject.

Briefly stated, "fletcherizing," i.e., the thorough mastication and insalivation of food, until the food is practically a liquid, not only satisfies the appetite with much less food, without loss of weight and impairment of physical and mental power, but in most cases it increases the strength, endurance, and general working power.

It reduces the thirst, resulting from the "bolting" habit. It promotes the flow and thorough admixture of the saliva with the food, resulting in chemical changes essential to the perfect digestion and assimilation of many foods.

Thorough mastication and insalivation promotes the flow of the gastric juice and prepares the stomach for receiving food, relieving it of the (unnatural) extra work imposed by unchewed or insufficiently chewed food. (Recent experiments by Schreuer and Riegel showed that the act of mastication is capable of directly modifying the activity of the gastric glands independent of the chemical stimulation produced by the saliva.)

There is no question that proper mastication and insalivation of food will prevent, as well as greatly relieve, if not cure, a long array of ailments, especially those more or less directly connected with the digestive tract. Not only should solids be chewed and insalivated, but liquids, too, should be slowly sipped and "mouthed" instead of "gulped down," practically untasted.

Bad effects of "bolting" food: Food which has not properly undergone the first stage in the process of digestion — thorough mastication and insalivation — but has, instead, been rapidly hurried through the digestive tract, irritates the organs of digestion, delays the processes of digestion and absorption, and gives rise to various gastro-intestinal disturbances, such as flatulence, fermentation, and putrefaction in the stomach and bowels, with their train of more serious disorders.

Children should be early taught to forego the soft, sloppy, pappy foods of infancy, and given hard, dry foods, such as zwieback, stale bread, toast, hard crackers, such as "Educator" crackers, necessitating thorough

mastication and insalivation. Chewing tends to develop the jaws, especially the lower jaw, massages the teeth and gums, which tends to prevent their decay and promotes their healthy development. On the other hand, failure to exercise its function—the crushing of food—results in failure of the lower jaw in children to develop properly, which in time is followed by overcrowding of the teeth in the jaw with a tendency to dental decay and various dental deformities.

Query: In view of the great prevalence of dysentery in our section of the country, kindly furnish the best dietetic treatment of dysentery.

All food should be easily and completely digested, non-irritating, and leaving only a small amount of residue. Coarse, irritating food, and food that leaves much residue in the bowel should be forbidden.

In the acute form, and until the severe colic, tenesmus, and frequent diarrhea subside, a liquid diet is by far the best diet. This is best supplied by a more or less starchy carbohydrate diet. Fatty and sweet foods should at all times be kept very low, and fruits and vegetables should be strictly forbidden during the acute stage. All food should be eaten slowly, thoroughly chewed and insalivated. Small portions, repeated every three or four hours, are better than larger meals every six hours. In severe cases, withhold all food for a day or two, except a little weak barley water or rice water to quench thirst. When stimulation is necessary, brandy is best. Well-cooked and strained cereal waters and cereal gruel salted, or otherwise plainly flavored (prepared at first with water, later made with milk) constitute by far the best dietary in acute cases, and may be made from barley, rice, sago, or arrowroot. Albumen water is also very acceptable at this stage. It will be found that the demulcent foods and beverages named are superior to milk in the acute stage.

Next in order of merit is milk, either diluted with lime water or carbonated water, or partially peptonized milk, malted milk, not exceeding one part to ten of water, is also most excellent, and affords an agreeable change. Some authorities recommend bouillon, meat broths, and soups, but these act chiefly as stimulants and have practically no food value.

Raw meat juice and raw scraped beef may also be used to advantage. Peptone preparations are best avoided.

Besides the cereal waters, other beverages permissible are toast water, weak tea, light red wine, weak and slightly sweetened lemonade. Coffee, also acid lemonade, is to be avoided. All food and drink should be given warm or hot, never cold, as cold excites intestinal peristalsis and increases diarrhea; heat diminishes intestinal peristalsis.

As soon as the acute symptoms subside, resort to a semi-liquid diet. Milk toast, well-cooked rice with milk, tapioca, custard, blanc mange, and

very soft-boiled eggs are very useful at this stage. The same applies to the dextrinized gruels and malted foods, zwieback, toast and bread crust. Later, steak, roast beef, broiled lamb chops may be used, but smoked, corned, and otherwise strongly spiced meats and sausage should be avoided. Vegetables and fruit are best avoided until convalescence is well established. No solid food should be allowed until all blood and mucus have disappeared from the fæces, and diarrhea, colic, and tenesmus have subsided.

Query: Kindly state the therapeutic uses of olive oil, with special reference as to its value in cholelithiasis.

The use of olive oil in the treatment of cholelithiasis is one of the oldest therapeutic measures in that painful disease, but authorities differ widely as to its usefulness in preventing the formation of gallstones as well as in aiding in their expulsion. That it acts as a solvent is, of course, impossible, but just how it acts we do not know. That it is of great value in certain cases, or to be more correct, in the case of some individuals, is certain, and being practically harmless, is at least worthy a trial. Olive oil has also been found useful in promoting the expulsion of concretions in nephrolithiasis, and cases have been reported where it was used successfully when taken both internally and externally in the treatment of mild attacks of appendicitis. Fleiner has reported good results with olive oil used per rectum in chronic constipation. It also possesses merit in the treatment of hemorrhoids, and Rutherford reported that it is equally efficacious in chronic dysentery and chronic constipation. Injections of olive oil are also most useful in cases of marantic infants, and poorly nourished people are often wonderfully benefited by drinking one or two ounces of olive oil a day, and applying it freely to the skin. It is a boon to patients suffering from stricture of the esophagus due to carcinoma, enabling them to swallow after everything else has failed. Its usefulness in dilatation of the stomach (Cohnheim), stagnation of stomach contents, stenosis of the pylorus and ulcer of the stomach is well established. In cases of ulcer of the stomach, a wineglassful of olive oil taken before meals will prevent the severe pain which otherwise follows eating.

Olive oil, especially when used therapeutically, should be pure, as adulteration of it with cotton seed oil (which is all too frequent) produces indigestion.

“Duty is measured by chance, and yet the essential idea of duty is never weakened. I am bound to do less than you, but I am just as surely bound to do my little as you are to do your much.”

BOOK REVIEWS

Pocket Manual of Homeopathic Materia Medica, comprising The Characteristic and Guiding Symptoms of all Remedies, by WILLIAM BOERICKE, M.D., Professor of Materia Medica and Therapeutics at the Hahnemann Hospital College of San Francisco, Author of "A Compend of the Principles of Homeopathy"; Associate Author of "The Twelve Tissue Remedies," etc., etc.; Fourth Edition, revised and enlarged, with the addition of a Repertory, by Oscar E. Boericke, A.B., M.D., Lecturer on Materia Medica, Lecturer on Institutes and Sub-Clinician of Therapeutics at the Hahnemann Medical College of Philadelphia. 16mo, pp. 981, Flexible leather covers, \$3.50 net. Boericke & Runyon, New York City.

Too much praise cannot be given to the makers of this book. The authors have certainly filled its many pages with a vast amount of information that is useful to the therapist who believes in the efficacy of drugs to restore normal conditions, and are to be congratulated on the thoroughness with which they have done their work.

The publishers have, by the use of a very fine grade of India paper, been enabled to keep the book of nearly a thousand pages in such a compact form that it is in nowise bulky, and the binding of limp leather covers will add very much to its durability. The book should have a large sale.

The Border-Land of Epilepsy, Faints, Vagal Attacks, Vertigo, Migraine, Sleep Symptoms, and Their Treatment, by SIR WILLIAM R. GOWERS, M.D., F.R.C.P., F.R.S., Hon. Fellow R. College Physicians of Ireland; Member of the Society Medicins Russes of St. Petersburg and of the Royal Society of Science of Upsala, etc. Philadelphia: P. Blakiston's Son & Co., 1012 Walnut Street, 1907. Cloth. Price not stated.

This little work is a series of studies of those cases in the author's practice which seemed to be on the borderland of epilepsy — near it, but not of it. Much light is thrown upon the nature of these affections, on their relation to epilepsy, and on questions of practical diagnosis. The work is a good one, and well worth the study of every physician who has to treat these cases — as who has not?

J. M. F.

AIDS FOR PRACTICAL PROGRESSIVE PHYSICIANS

In 1906 two medical journals were sent out to bid for the patronage of the medical practitioners of all schools. They have steadily increased in size and usefulness.

They are the "Physician's Drug News," published at 250 High St., Newark, N. J., and the JOURNAL OF THERAPEUTICS AND DIETETICS, published at 703 Washington St., Dorchester District, Boston, Mass.

To a very great extent one is the complement of the other, and the publishers, realizing this fact, have decided to offer the two to new subscribers for 1909, for \$1.25. Send your subscription to either one and receive the best value for your money in medical literature.

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EDITORIALS

THE QUESTION OF DOSAGE

By the term *dosage* is understood not merely the *dose*, which is the exact amount administered at a given time or during a given period, but rather the method or system which governs the administration of remedies, including the amount given, the frequency of repetition, and the method of administration.

With this understanding, it is safe to say that the question of dosage is scarcely second in importance to that of the indicated remedy. Widely different and even opposite effects can sometimes be secured from the same remedy, by the use of different doses and systems of dosage. The necessity of specifying the size of the dose which was used in securing given results, as well as the frequency of repetition, was emphasized last month, in the editorial entitled, "Specify Your Working Tools." Let us now go a little further and consider the underlying principles which govern the whole matter.

The different schools of medicine and systems of medication are largely distinguished by different systems of dosage. There is a system

handed down from the fathers, sometimes known as massive dosage, which is characterized by a maximum and a minimum dose, which must be learned for each and every drug and preparation. Added to this is the average dose and the maximum daily dose. Something is also sometimes said about the frequency of repetition. If the doctor keeps within the limits thus laid down, it is assumed that he is on the safe side, and cannot be blamed, even though injury should result to the patient — for has he not followed the dictum of the authorities? It is this system, of which Potter, in his admirable treatise on therapeutics and materia medica, says, "The dosage of medicines is the weakest part of our therapeutic armament, the flaw in our weapons which may be the cause of their failure at any moment, perhaps the most critical one for a life. If the accumulated rubbish of ages which has been called therapeutic knowledge is ever given scientific shape, or placed in the process of becoming a science the question of dosage must form one of the principal corner stones of the foundation." This is the system which was taught to most of us in our medical schools, and which is used by far the larger number of physicians the world over. It has its virtues and it has its failings.

Next comes the therapeutic dosage of the eclectic, which aims by small and yet appreciable doses, repeated at regular and moderately frequent intervals, to secure the medicinal action of the drug, without encroaching in any degree upon the so-called physiological action. Concerning this system, Scudder says: "As a rule, the dose of medicine should be the smallest quantity that will produce the desired result. The proper dose, or that which gives the best result, is very much smaller than one who has been used to the large doses of indirect medicine would suppose possible. Yet it is not infinitesimal, as our homeopathic friends would have us believe." He further teaches that it is not best to be in a hurry, but rather that it is desirable to change the manifestations of diseased life slowly, effecting the changes insensibly, without shock to any organ or the entire body. The usual method of administering remedies by this method consists of putting a given quantity, say one teaspoonful or more, of the tincture or specific medicine in four ounces of water, and giving a teaspoonful of the mixture every one, two, or four hours.

Then there is the so-called infinitesimal dosage of the homœopathist, which really embraces on the one hand material doses of the mother-tincture, and on the other the infinitesimal dosage of the higher potencies. Physicians of this school also state their position in words similar to those quoted above from Scudder, "the smallest quantity that will produce the desired effect." They select their remedy because of its known power, when given to well persons, to produce the exact symptom-complex which they discover in the patient. Under these conditions, they believe that the diseased human system is often found to be exceedingly

sensitive to the action of the remedy thus selected, and that frequently what would be regarded as exceedingly small doses are still larger than sufficient to produce the effect they desire, even large enough to produce serious aggravation. Their position may be briefly stated as follows, in the words of one of their number: "The single remedy, in quantity sufficient to produce the desired result, improvement in the condition of the patient, and repeated only when that improvement has ceased to continue."

Finally, we have the so-called intensive method of dosage, or dosage for effect, as employed by the alkaloidist, or dosimetric physician, who employs largely the active principles, to which this method is particularly adapted. This consists essentially in the use of accurately measured, minimum doses of the selected remedy, given at frequent intervals until either the medicinal or physiological effect of the drug is secured, then less frequently as long as it is desired to keep up the effect. This method tends to accuracy in therapeutics. It does away with all fear of overdosing, and with all need of learning an arbitrary list of maximum and minimum doses. But on the other hand, it requires an accurate knowledge of both the remedial effect and the physiological action of the drug. The physician must know, first, what he wishes the drug to do — its medicinal action; and secondly, what it will do if pushed to the limit of safety — its physiologic action. Its disadvantage is that its administration cannot be left in the hands of any one who has not been properly instructed as to the effects to be looked for, or who has not sufficient intelligence to make the changes necessitated by the changing conditions, when these instructions have been given. The doctor who would learn to use this method to advantage, must be willing, as one has said, "to serve his apprenticeship outwatching the stars beside feverish cots — the only school where true clinical therapy is learned."

Whichever method is used, it should be understood thoroughly, and the physician should so accustom himself to its use that it shall come as second nature. And in describing the treatment of a diseased condition to another, he should accustom himself to give, not only the indicated remedy, but the exact preparation used, the amount at each dose, the frequency of repetition, and the mode of administration, of other than the ordinary.

J. M. F.

"It is thus that each year of life comes to me — for each day a clean, white page; and we are artists whose duty it is to put something beautiful on the pages one by one; or we are historians, and must give to the page some record of work or duty or victory to enshrine and carry away."

DEPARTMENT OF THERAPEUTICS

PNEUMONIA IN CHILDHOOD*

BY G. W. COMPTON, M.M., SAN DIEGO, CAL.

It would seem that an apology might be in order for addressing a professional audience upon so old and hackneyed a subject as "Pneumonia in Childhood." But I ask in all candor, is an apology necessary? Do we know all about it? One glance over our own limited field of professional activity will give assurance to the contrary.

In every part of our country, from north to south, in the hot, moist air of Florida, and in the thin, dry atmosphere of the Rockies, the bleak barrens of Canada and the rich jungles of the Mexican coast, pneumonia prevails as one of the principal causes of death.

It would seem, in theory at least, that we have a splendid knowledge of the disease. Certainly the aetiology, pathology, clinical course, and even the cure are clear to us; but in the practical way, in the *application* of our knowledge to the concrete case, there is something missing, and I believe all will agree with me that the death rate from the disease far exceeds what it should.

I wish to refer to the two distinct varieties of pneumonia — the croupous or lobar pneumonia, and the catarrhal or broncho-pneumonia.

Bronchial or catarrhal pneumonia is the form most common in infancy and childhood. The lesions of broncho-pneumonia in childhood are even more extensive than in adult life.

The disease is usually secondary to a catarrhal inflammation which extends from the larger tubes to the smaller and smallest, and involves the air cells by this process of extension. It should be borne in mind, however, that invasion through contiguous tissue takes place more rapidly in the infantile organism than in the adult, so that we have a more rapid involvement of adjacent and contiguous lobules not due exclusively to extension along continuity of bronchial mucous membrane.

In the great majority of cases both lungs are involved, and there is no regularity as to the process of invasion, and no rule by which we can determine the limit of the extent of the invasion.

The different stages of the disease in children do not differ materially from what one obtains in the adult, with the exception that in weak and delicate children the different stages are more apt to be prolonged, and

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the whole ~~course~~ of the disease not only more prolonged but more severe in type.

There is the same difference in the onset between croupous and broncho-pneumonia in childhood as exhibited in adult life — the differentiation often being more marked.

In croupous pneumonia the onset is more abrupt and sudden.

In broncho-pneumonia the onset is more insidious and prolonged.

In the croupous variety, pleurisy of greater or less extent is usually present, and that part of the pleura which overlies the part of the lung where the pneumonic process reaches the surface is apt to be involved.

Unlike croupous pneumonia, broncho-pneumonia has no typical set of symptoms.

As to the etiology of this disease, the predisposing causes are exposure to atmospheric changes or anything which lowers the general vitality. The casual agencies are omnipresent. One attack predisposes to another, especially when the vital resistance is paralyzed and the heat in the body reduced from any cause whatsoever.

This is easily comprehended when we find the pneumococcus a life-long guest in the mouth, ready at any time to attack its host again when vitality is low.

Pasteur found it impossible to inoculate the cock successfully with the pneumococcus,— that bird's temperature being higher than man's; but when he was placed in the refrigerator until his temperature was lowered to ninety-seven degrees, the pneumococcus infection took place.

This throws some light on the attacks following exposure and the loss of heat from the body.

I take the liberty of asserting at this time that it is my belief that one of the most important causes of pneumonia is the wearing of improper undergarments. I was never called to attend a case of pneumonia but that I found the patient clothed in woolen underwear from head to foot.

I desire to state that wool is not the material for garments to be worn next to the skin. All authorities on matters of hygiene agree that the absorption, as well as the eliminations of moisture takes place quicker with linen than with wool, cotton, or silk. The failure of wool to quickly absorb and eliminate moisture, if taken into careful and thoughtful consideration, would abolish its use altogether as a first undergarment; and especially for children who are prone to exercise and frolic until they are frequently in a state of profuse perspiration, then exposed to draughts, when a rapid extraction of heat takes place, thus chilling the body and oftentimes resulting in an attack of pneumonia. A porous linen garment next to the skin has the advantage over all other fabrics of absorbing moisture and eliminating it quickly, and will provide for a dry climate around the body. The absorbent power of linen makes it the ideal undergarment.

The purpose of outer clothing is directly antagonistic to ~~that of~~ the underclothing. The outer garment should be a poor absorbent of moisture; the undergarment a good absorbent of moisture.

I realize full well that I am treading upon treacherous ground when I advance this theory, for I am aware that the medical profession, generally, has for years advocated wool. But the theory is wrong, and the practice is a bad one.

I firmly believe that the woolen undergarment has been responsible for more pneumonia than almost any other one cause. This is making a broad assertion, but experience and close observation have taught me such fact.

As regards the pathology of broncho-pneumonia and acute lobar pneumonia, I need to state nothing, as it is familiar to all.

Relating to the diagnosis, I refer particularly to acute lobar pneumonia.

There are some characteristic landmarks which, if you will bear in mind, will lead you to an early diagnosis of this disease — croupous pneumonia.

In the majority of cases the disease begins suddenly, with a well-defined chill and sometimes with convulsions. The chill frequently lasts from twenty minutes to one hour, followed by a rapid rise of temperature, often reaching one hundred and four degrees to one hundred and five degrees in the first twenty-four hours. The pulse is full, rapid, and tense. There is severe dyspnea; rapid, shallow, and panting respiration, that may be sixty to eighty per minute. The usual ratio between the pulse and respiration is lost early in the disease,— the ratio being, perhaps, one to two. A cough soon develops, at first hard and dry, but about the third day the expectoration is more free and changes to the characteristic pneumonic sputum.

Upon physical examination we find a deficient respiratory motion, due to hyperemia or engorgement of the lung.

I will not consume your valuable time in outlining the second and third stages of the disease.

Some authorities state that this disease can be aborted at any and all stages. This assertion I question, for it is not at all in keeping with my experience.

When acute lobar pneumonia has reached the second stage or the stage of hepatization or exudation, you can no more abort it than you can abort smallpox when it has reached the pustule stage; but I do say you can frequently abort the disease if opportunity is offered you, recognizing the disease *early*, and can attend the patient during the first stage of hyperemia or engorgement.

I desire to impress the importance of an early diagnosis of this disease,

for I believe you can frequently do more real good in these cases during the first twenty-four to forty-eight hours than you can possibly do later on. To the extent that you can flush the capillaries and get the blood from the congested lung, to that extent you equalize your circulation and either abort or modify or lessen the disease.

The homœopathic materia medica is rich with suggestions. Good nursing is one of the important factors in treating pneumonia. Diet holds another important place. Food must be light and yet nutritious. The temperature of the room should be kept uniform — sixty-five degrees or seventy degrees — and fresh air, with no draughts, freely admitted. Keep your patients covered in bed. Allow them plenty of good drinking water, and in the early stage encourage the drinking of acidulated drinks, such as hot lemonade. If alimentary tract is loaded, flush with good enema, and get rid of morbid accumulations.

When the patient's temperature reaches one hundred and four degrees, a tepid sponge bath can be given with safety and to good advantage. Please ever remember that opiates, in any form, and cathartics are remedies you should shun in the successful treatment of pneumonia.

For pain, when pleura becomes involved, dry heat applied to seat of pain frequently gives great relief, along with your indicated remedy.

Keep digestion in good order, and bowels regular and kidneys active. The treatment of the toxemia is of paramount importance. This will, first of all, include a perfect elimination from skin, bowels, lungs, liver, and kidneys.

The use of local applications is still a mooted question. Avoid anything on the chest which will in any way interfere with respiration. Personally, I like to cover the lungs with pure, hot cod-liver oil, over which put a cotton covering. I am inclined to think this has rendered me good service in times gone by.

Remember, every case is a law unto itself.

In the treatment of the first stage of the disease, we have found aconite, ferrum, phosphorus, belladonna, and veratrum viride of service, and their use in potency obviates the danger of cardiac depression which so frequently follows the employment of antipyretics.

When a typhoid condition ensues, we may think of baptisia, echinacea, or rhus tox.

For the localized pain in the early stages — bryonia, cantharis, phosphorus, sanguinaria, and similar remedies, not only control this, but give the first help to favorable resolution.

As we reach the stage of hepatization, we have valuable medicinal agents in hepar sulphur, tartar emetic, ammonium muriaticum, stannum, and the arsenite of antimony.

When resolution is imperfect the iodides are of great value, — thus,

the iodides of antimony, arsenic, and baryta must be considered. For the nervous phase, remedies like belladonna, hyoscyamus, agaricus, valerianate of ammonia, stramonium, ignatia, moschus, and many others, naturally apply according to their symptomatology.

So long as heart signs are intact, with a good pulse rate and no dilatation, stimulation is unnecessary, but be on your guard, and when you really need stimulation use it cautiously, and it will frequently carry the patient over the crisis. The stimulants most frequently called for are strychnia, strychnine arsenite, digitalis, or brandy and spartein.

TYPHOID FEVER

BY FRED G. PHILLIMORE, M.D., BOSTON, MASS.

Definition.—It is an acute, infectious disease, excited by a special bacillus, characterized anatomically by definite lesions in Peyer's patches, mesenteric glands, and spleen; it is manifested clinically by fever, headache, stupor, abdominal distention and tenderness, diarrhoea, enlargement of the spleen, and a rose-colored abdominal rash.

Etiology.—Predisposing causes: autumn season, early adult life, and a personal susceptibility.

Exciting cause: The bacillus of Eberth. The intestinal discharges are the source of the contagion, and drinking water contaminated by them becomes the chief medium of transmission.

Pathology.—The characteristic lesions are found in the abdominal lymphatics, namely, in Peyer's patches, solitary glands, and mesenteric glands. The changes in Peyer's glands are best studied in the lower part of the ilium, which should be opened on the side of the mesenteric attachment.

In the first few days the glands are swollen and hyperæmic; later there is a marked cell-proliferation, the blood vessels are compressed, and the glands become pale and prominent (medullary infiltration). If the disease advances necrosis sets in about the second week; the glands become yellow and soft and discharge their contents, leaving behind irregular oval ulcers, with swollen and undermined edges, and with smooth bases formed by the submucous coat, muscular coat, or peritoneum. In the fourth week cicatrization sets in, and the gland is ultimately replaced by a smooth, depressed scar.

In addition to these glandular lesions, the mucous membrane of both large and small intestines shows catarrhal changes.

In mild cases the stage of ulceration may not be reached, the proliferated cells being removed by fatty degeneration and absorption without

rupture of the gland. The solitary and mesenteric glands pass through similar changes, but the latter rarely rupture. Other lesions are found which are not characteristic. The spleen is soft and swollen. The liver, kidneys, heart, and muscles reveal parenchymatous degeneration. The respiratory tract is commonly the seat of catarrhal inflammation. In rare instances there appears to be a general infection without lesions of the intestinal glands (typhoid septicemia).

Period of incubation.—Two to three weeks.

Symptoms.—Prodromal symptoms: gradual weakness, headache, vague pains, nosebleed, and often slight diarrhea.

The attack. Fever.—The temperature rises gradually, reaching a maximum (104 to 105 degrees) in from one to two weeks; it remains at this elevation for another period of from one to two weeks, when a gradual defervescence begins and occupies a third period, lasting from one to two weeks. Throughout its course the fever is characterized by marked daily remissions, the evening temperature being from one to three degrees higher than the morning.

In some cases, especially in the young, the temperature rises quite abruptly. Slight diurnal remissions indicate a protracted case. As defervescence advances, the temperature becomes more irregular; the remissions are more decided, and not infrequently the higher temperature is recorded in the morning. An abrupt fall of several degrees should suggest intestinal hemorrhage or perforation.

Respiratory symptoms.—Hurried respirations, slight cough, and bronchial rales.

Circulatory system.—The pulse becomes rapid, weak, and dicrotic. The rapidity is often less than such temperatures generally produce. The heart sounds become feeble. The first is especially weak and resembles the second.

The face.—The expression is dull and heavy, the cheeks are somewhat flushed, the conjunctivæ are clear, and the pupils dilated.

The tongue is tremulous; at first it is red at the tip and edges, and covered posteriorly with a whitish fur. In severe cases the tongue becomes dry, brown, and fissured, and "sordes" collect on the teeth.

The stomach.—Gastric symptoms are not common, but obstinate vomiting sometimes develops and becomes a serious complication.

Intestinal symptoms.—The belly is distended with gas. Tenderness is frequently noted on palpation; it may be general, or confined to the right iliac fossa. Gurgling may also be detected in the latter region, but it has little significance. Diarrhea is generally present, though it is not a constant symptom. The discharges vary in number from three to six or more a day; they are thin, offensive, and of a yellowish color; on standing, a turbid liquid rises to the top and a granular sediment falls to the bottom.

The eruption.— This appears from the seventh to the ninth day, and is most abundant on the abdomen, though it is not infrequently observed on the chest and back. It is composed of small, slightly elevated, rose-colored spots which disappear on pressure. It comes out in successive crops over several days. It may be absent particularly in the old and very young. Rarely, in malignant cases, is the eruption petechial.

Splenic enlargement is rarely absent. The organ may rupture.

Nervous symptoms.— Headache, slight deafness, stupor, muttering delirium, twitching of the tendons, picking at the bedclothes or imaginary objects, and coma vigil (in which the eyes are open but the patient is unconscious):

The blood.— An examination of the blood reveals a reduction in the number of both red and white cells.

The urine is febrile and often slightly albuminous. Retention is common.

Convalescence is marked by anæmia, falling of the hair, desquamation of the cuticle, and often mental enfeeblement.

Varieties. Mild Typhoid.— There is moderate fever with marked remissions; the diarrhea is slight; nervous symptoms are often absent; the rash is usually present, and often abundant.

Abortive typhoid.— There is an abrupt onset with severe symptoms, but convalescence follows in a few days.

Walking typhoid.— The symptoms are mild, and often disregarded by the patient, who refuses to go to bed; but grave symptoms may suddenly develop, and death from perforation is not uncommon.

Typhoid in children.— The rash is often absent; the fever rises abruptly, cerebral symptoms are marked.

Complications.— Any symptom aggravated constitutes a complication; thus high fever, excessive diarrhea, and tympanites become complications.

Hemorrhage.— This usually occurs during the third week, and is indicated by a sudden fall of temperature, followed by dark red or tarry stools.

Peritonitis.— This may result from perforation, or from extension by contiguity. The former is the more common, and is recognized by a sudden pain, a fall of temperature, distention of the belly, and symptoms of peritonitis.

Pneumonia and hypostatic congestion of the lungs are common complications.

Relapses.— These are quite common; they repeat the symptoms of the original attack, but they are generally milder and of shorter duration, and seldom prove fatal.

Recrudescence.— This is a sudden temporary elevation of temperature

occurring during convalescence, and is not associated with a return of the other symptoms. It is usually due to constipation, excitement, or irritating food.

Prognosis.—The prognosis should always be guarded. No case is too mild to prove fatal, and no case is too severe to recover. The mortality varies in different epidemics. In private practice the average is probably between five and ten per cent, and in hospital practice it is somewhat more.

Continued high fever, with slight diurnal remissions, excessive diarrhea, severe cerebral symptoms, and repeated hemorrhages are unfavorable features.

Treatment.—Now I do not profess to have the best treatment, but I do have very good luck with my typhoid cases. My treatment is as follows: \mathcal{R} Baptisia \mathfrak{J} i; echinacea \mathfrak{J} ii; aqua qs \mathfrak{J} iv. Sig. \mathfrak{J} i every three hours.

Sodium Sulphite grs. v every five hours.

For that full, bounding pulse I add veratrum gtts xv to aqua \mathfrak{J} iv and give teaspoonful every two hours.

I restrict the diet to a semi-fluid, such as broth, malted milk, or cow's milk. Pay attention to the discharges, and use plenty of disinfectants around the room and toilet.

Do not give too much medicine, and do not give cathartics, as you may increase the inflammation in the bowels. With plenty of care, nourishment, and a few well-directed remedies you will do the best work with your typhoid cases. A too copious use of drugs is harmful. You cannot break the disease up immediately, but with care, nourishment, and the few indicated remedies, you will generally carry your patient through the storm safely.

“Nothing is lost; the tiniest seed,
By wildbirds borne, or breezes blown,
Finds something suited to its need,
Wherein 'tis sown and grown.

So with our deeds; for good or ill,
They have their power, scarce understood.
Then let us use our better will
To make them rife with good.”

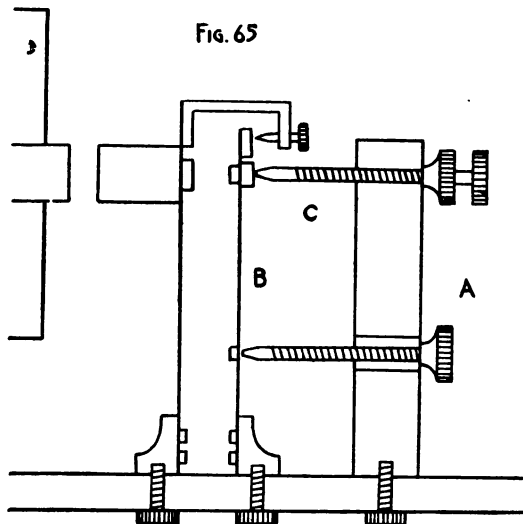
PHYSICAL THERAPY

FIRST STEPS IN MEDICAL ELECTRICITY

BY HERBERT MCINTOSH, A.M., M.D., BOSTON, MASS.

Continued from page 49

Interrupters.—I. Vibrating Hammer. The current may be interrupted by a contact breaker, as described in Chapter III, on the physics of coil currents. This has been improved by the use of a tension screw, by which the hammer is made to resist the pull of the core (Fig. 65).



A, head of tension screw; b, spring; c, platinum contacts.

By increasing the tension of the spring, the full magnetizing effect of the core is secured, and the greatest length of spark obtained. When, however, the tension of the spring is very high the platinum points may strike together, preventing the action of the secondary coil, and exposing the primary to serious damage. On large coils the vibrating hammer type of interrupter is not satisfactory; first, because the platinum points are likely to stick, and secondly, because the rapidity of the interruptions of which it is capable is not great enough to secure the highest efficiency of the coil. Therefore, it is necessary where coils are employed, capable of using large currents, to use interrupters of greater rapidity and uniformity of action.

Figure 66 represents an induction coil with cabinet for the convenient

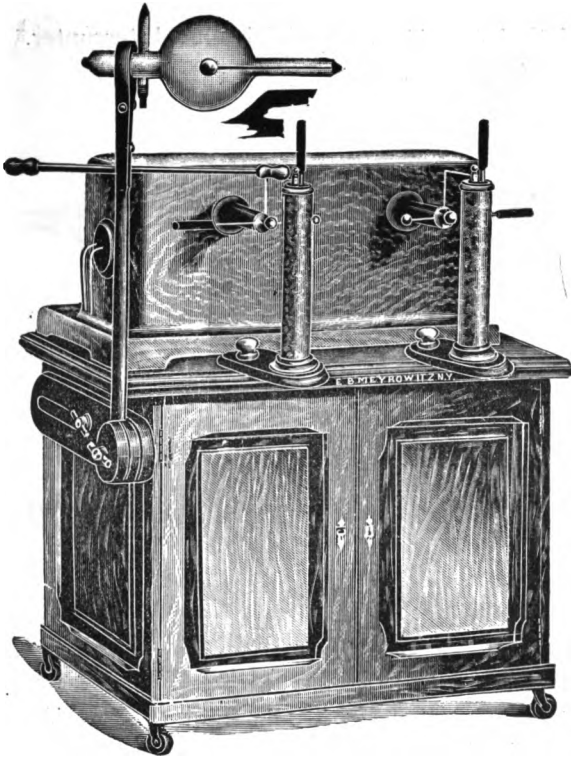


Fig. 66.

storage of an interrupter, which is manufactured by the E. B. Meyrowitz Co. (Knight & Lowenburg agents, Boston, Mass.) In coils in which current interrupters are very rapid, condensers are not required.

II. Mechanical Interrupter. The first and oldest type used as a substitute for the hammer vibrator is the Mechanical Interrupter. Of this type there are many varieties. The earliest form consists of an apparatus in which contacts are made and broken by a rod dipping in mercury, the movement being effected by a motor whose speed can be varied. This arrangement works well for ordinary speeds, but where the speeds are increased, the mercury is displaced and the interruptions become irregular. An improved form of a mercury interrupter substitutes a rotary interrupter for the "dipper" break. Where mercury is used it is covered with a layer of alcohol or paraffine oil to quench the sparks. Of these types there are several modifications in use, among which may be mentioned the turbine jet interrupter. Here a continuous stream of mercury is propelled by a centrifugal pump. The mercury strikes periodically on contacts and completes the circuit. Many modifications of this type are in use whose consideration must be omitted for want of space.

III. *Electrolytic Interrupters.*— (a) *Wehnelt's Interrupter.* ¶ This device

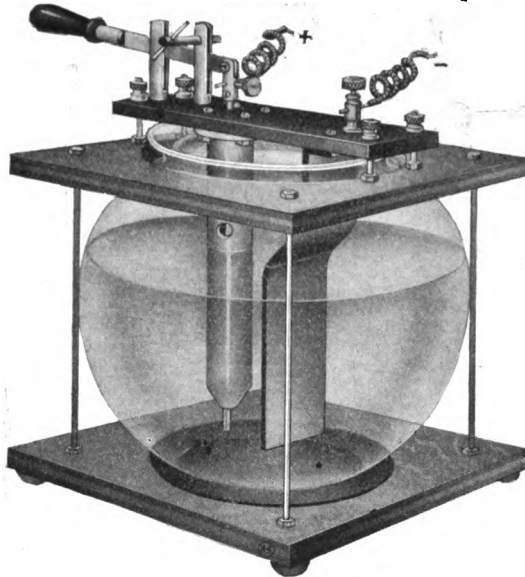


Fig. 67.

consists of a jar of dilute sulphuric acid (Fig. 67) in which are immersed a lead plate constituting the kathode, and a platinum wire enclosed in an insulating porcelain sheath, which acts as the anode. The extremity of the platinum wire extends beyond the porcelain insulation. A small opening in the porcelain sheath permits the escape of fluids which rise above the surface of the electrolyte.

When this apparatus is placed in simple series with a coil, and the circuit closed, hydrogen bubbles and steam are formed at the anode, which act as an insulating envelope. The passage of the spark destroys the bubbles, which are immediately reformed, and again immediately dissipated. This process continues until the electrolyte becomes hot when the action stops. The premature heating may be controlled by using a large quantity of fluid in the jar. The Wehnelt interrupter permits an adjustment of the platinum anode by which a greater or less surface may be exposed. By regulation of the exposed surface of the anode, the voltage of supply and the self-induction of the primary coil, excellent results may be obtained from this type of interrupter, and the number of sparks may vary from ten to one thousand per second. The interrupter shown in Fig. 67 is used in connection with the Grosse & Flamme coil manufactured by the Kelley, Koett Co.

(b.) *The Caldwell Interrupter.* This consists of a jar (Fig. 68) containing dilute sulphuric acid in which are immersed two lead plates, one serving as anode and the other as kathode. One of the plates is en-

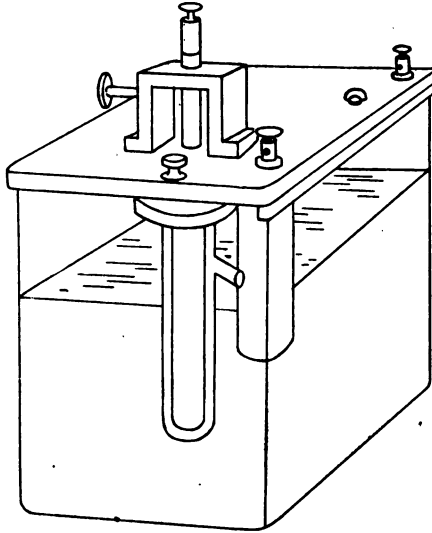


Fig. 68.

closed in a glass or porcelain covering, which contains a minute opening. Through this opening the liquid freely circulates. When the current is passed through the jar by means of conductors attached to binding posts, bubbles of steam are formed and quickly destroyed in the opening in the platinum sheath. Devices are furnished for regulating the size of the hole. The interruptions in this type of interrupter are exceedingly rapid, and produce marked modifications in the appearance of the sparks, which may vary from a shower to sinuous arcs of pale, yellowish-green flames.

Operations of Rhumkorff Coils by the Direct Commercial Mains. This may be accomplished in various ways.

(a.) Storage batteries may be charged from the commercial mains, and used to operate coils by means of a hammer interrupter. As such batteries are portable, they can be carried to places where commercial mains are not available, and employed for this purpose.

(b.) The direct current may be used directly in connection with a shunt resistance. Here a mercury jet or electrolytic interrupter may be used.

(c.) Instead of a shunt resistance, a series resistance may be used in the primary current, together with a mercury jet interrupter.

(d.) For high pressures a motor dynamo may be used generating from sixty to one hundred volts. By introducing a series resistance in circuit with the field-magnet windings, the pressure can be made to vary so as to suit either a mercury jet or Wehnelt interrupter.

Operation of Rhumkorff coils by the alternating current mains.— This is a more difficult problem. If, however, the movement of the interrupter can be made to keep time with the periodicity of the current, the result

may be achieved. This would require in a sixty cycle alternating current that the interruption should keep step with the alternation of the current, and occur sixty times in each second. This may be accomplished by means of a mechanical rectifier. Such a rectifier may consist of a steel rod placed on a pivot and turning in the field of an electro magnet. This rod at one end is necessarily attracted to each pole of the magnet as its polarity changes, and at its other end, in its excursions, makes contact with each of two studs and thus closes the circuit of utilization. The contacts may be arranged to take place at the crests of the alternating wave currents. Instead of the type of rectifier just described, the aluminium rectifier, described in Chapter VII, may be employed.

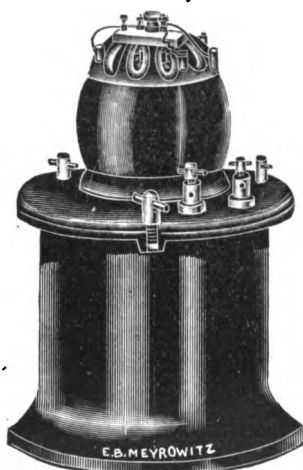


Fig. 69.

Figure 69 represents a mercury interrupter which is used in connection with a synchronous motor. Here the alternations of the motor are synchronized with the interruptions of the current and by an adjusting device the highest voltages in each alternation may be obtained. These methods, however, of which several more might be mentioned, are efforts to synchronize the alternations of the current with the action of the interrupter, or to convert the current into one which is direct or pulsatory. The natural solution of the problem of utilizing an alternating current is to excite step-up transformers (Fig. 45, Chapter VI), capable of supplying high voltages. These will be considered in a

later chapter.

Spark discharge.—Upon separating the terminals of a Rhumkorff coil, a thick yellow flame is observed leaping across the gap, which is sufficiently hot to ignite paper. When the terminals are farther separated, the flame becomes sinuous and curves upwards from the convection of heat currents. When still farther separated, zigzag sparks dart across the gap, to be followed by a violet brush discharge with a wider separation of the terminals. To obtain the largest sparks the discharge should occur between a disk and a ball; the ball constituting the anode of the coil. Should the current be reversed the spark will issue from the periphery

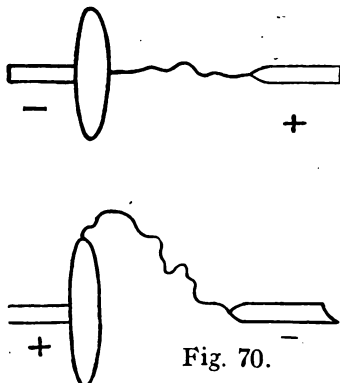


Fig. 70.

of the disk. This constitutes an easy method of determining the polarity of the coil (Fig. 70).

Effect of different potentials upon the length of the spark.—Much labor has been spent upon the problem of determining the difference of potential from the lengths of the spark. Results obtained from different observers vary greatly. As indicated above, the length of the spark varies with the shape of the terminals, and it is not always easy to determine when the spark changes from a brush to a spark. Fleming estimates that at distances not exceeding five or six centimeters the voltage required to produce a spark between metal balls is not far from three thousand volts per millimeter, or one hundred and eighty thousand volts for a spark measuring six centimeters, or seventy-five thousand per inch. Other estimates are as low as thirty thousand volts per inch.

(To be continued)

THE SCIENCE AND ART OF HYDROTHERAPY

BY CHARLES ROSENTHAL, M.D., BOSTON, MASS.

MODERN scientific research has placed upon a sure foundation the great truth that healing power is not possessed by physicians nor by remedies, but that the curative process is a force which dwells within the body; that is to say, the body heals itself.

Without doubt water is the most ancient of all the remedial agents for treating diseased conditions. The physiological properties of water, both hot and cold, were fully understood by Hippocrates, and were employed by him for a great variety of maladies.

The basis of the system of Priessnitz, whose success, crude as were his methods, was sufficient to compel attention and an extensive following, was perspiration followed by cold application. Of the modern investigators, Baruch, Kellogg, and Winternitz have established hydrotherapy on a sound and scientific basis.

The science and art of hydrotherapy includes not only applications of water, in its various forms, but also thermic applications made by means of vapor, hot or cold air, and various heated objects, as well as light and heat.

The skin being involved in the greater share of the medicinal uses of water, it will be profitable for us to review, briefly, the anatomy and physiology of this wonderful structure. The skin is about an eighth of an inch in thickness, and is composed of a framework of white and yellow

elastic fibers, in which are immeshed an exceedingly large number of glands, blood vessels, and nerves. Connected with the hair follicles is an abundance of smooth muscular fibers which are capable of contracting the skin, as in the condition called "*goose flesh*."

The sweat glands are present almost everywhere in the skin, and each gland receives an arteriole and a number of nerve filaments; they are provided with ducts through which their product is discharged upon the surface.

There are three degrees of activity of the sweat glands: (1) insensible, (2) sensible, (3) profuse perspiration. The amount of insensible perspiration produced daily is about two pints or one sixty-fourth of the weight of the body; this being double the amount of water exhaled by the lungs. Profuse perspiration may be so abundant as to amount to two or three pounds per hour.

The secretion of sweat is increased by the following agents and conditions:

- (1). Increased temperature of the surrounding medium as the contact of hot air, hot water, or other heated substances, with the skin.
- (2). A diluted condition of the blood, which is produced by copious drinking of water, especially warm water.
- (3). Exercise, which increases the activity of the skin, not only by increasing the activity of the heart, but by raising the temperature of the blood and thereby stimulating the sweat centers. The temperature may be elevated to 104° F. by violent exercise.
- (4). By massage and friction.
- (5). By the use of certain drugs, as pilocarpin.
- (6). Stimulation of the secretory nerves by electricity.
- (7). Mental excitement, as in hysteria and neurasthenia.
- (8). As a symptom in certain diseases, as intermittent malarial fever, tuberculosis, and acute rheumatism.
- (9). A warm, moist temperature.

Sweating may also occur with a pale skin, the result of pain, collapse, shock, fear, or the death agony.

Perspiration is decreased by:

- (1). Applications of cold water or by cold air.
- (2). By certain drugs, as atropine.
- (3). A profuse watery discharge from the kidneys.
- (4). Certain forms of disease, as cancer, diabetes, and many cases of chronic dyspepsia.

The most important means by which the danger of excessive accumulation of heat within the body is averted is by perspiration. When the skin fails to perform this important function, as it not infrequently does in fever, the body temperature often rises to a most dangerous degree. Not

only uric acid and urea, but more subtile poisons are formed in the sweat, as is shown by the investigations of Bouchard. In such cases water is one of the best agents by which the perspiration can be re-established and the danger allayed.

Each one of the several millions of sweat and sebacious glands of the skin is supplied with secretory nerves that are connected with the great sympathetic centers and other centers of the spinal cord. The skin, as has been aptly remarked, is a harp of a thousand strings, upon which one who is a master, of the necessary means, may play in such a manner as to produce almost any desired physiological or therapeutic effect. The skin is the keyboard, and the nerves and nerve centers the internal mechanism.

The physiological action of water at different temperatures is chiefly useful through the thermal and mechanical effects produced. The blood vessels of the important organs may be caused to contract or dilate by the application of cold, in proportion as the application is short and intense, or long and moderate in intensity.

Winternitz called attention to the remarkable influence of cold applications in increasing the number of blood corpuscles, both red and white, also the augmentation of the hemoglobin and the alkalinity of the blood. Heat decreased these conditions.

In the application of heat to the body much depends upon the condition of the patient, the temperature, the duration and mode of application. There are a variety of ways of applying heat to the body for therapeutic purposes. The full bath, the sitz bath, the vapor bath, the hot-air bath, the electric-light bath, and the fomentation.

The use of light in therapeutics is so closely associated with hydrotherapy that it seems proper to make here a concise statement of the physiological effects of light.

The skin, as well as the air, is to a large degree transparent to light. Light penetrates the body in the same manner as it penetrates any other transparent or translucent medium. The actinic ray penetrates the body to a considerable depth. In the case of the water bath, the vapor bath, or the hot-air bath, heat reaches the interior of the body by conduction, the skin offering great resistance to its passage, while the luminous rays of the incandescent film passes readily through the skin.

The electric light bath does not depend for its effect upon the air surrounding the patient, but upon the radiant energy which passes in straight lines from the incandescent film into the patient's body. The incandescent light bath enjoys a great advantage over other methods of applying heat, as it produces strong tonic effects at the same time that it encourages powerful elimination. It is superior to every form of heating procedure in the quickness with which the skin may be acted upon.

Perspiration begins to appear in three to five minutes. (Kellogg.) It has been ascertained that the lungs throw off, while exposed to the incandescent light, a decidedly larger proportion of CO_2 , than usual, showing increased oxidation.

Therapeutically the electric light bath is far superior to any other form of sweating bath for cases of bright's disease, and cardiac, renal or anemic dropsy, for the reason that the skin may be excited to a high degree of activity by a very short exposure. Diabetes, obesity, neuritis, neurasthenia, and rheumatism are favorably acted upon by the thermic impressions of the electric ray.

The sweating bath is a hygienic measure of the greatest value for persons of sedentary habits, constituting to some extent a compensation for lack of exercise. The sweating bath, followed by a cold application, relieves the system of the excrementitious wastes accumulated within the body. The greatest benefit derived through sweating is by stimulating the circulation of the skin, the excitement of all its functions, and especially in the reflex influences upon the internal structures, which are set in operation, and the vigorous fluxion of the blood which is created by the intense hyperemia of the skin produced by prolonged exposure to heat followed by cold. The skin is capable of holding one half to two thirds of all the blood of the body.

The neutral bath, at bedtime, is more efficient as a sedative and hypnotic than all the medicinal agents. Hot applications may be continued for hours, if necessary, to control pain. A short, very hot, sitz bath is a most excellent means of relieving pelvic pain. The pain of hemorrhoids and rectal ulcer generally yields to fomentations applied to the inflamed region. The prolonged neutral immersion bath is very valuable in certain forms of skin diseases. The Scotch douche is of great service in cases of lumbago, spinal irritation, and uterine and ovarian neuralgias. It is also one of the best means of energizing relaxed or paralyzed muscles.

The association of water with galvanic or faradic electricity makes a valuable combination in many diseases, such as amenorrhea, dysmenorrhea, and painful neuralgic conditions.

General or local massage in connection with hydrotherapy is employed with great benefit in certain cases of chronic rheumatism and sciatica.

Much of the prejudice existing against the employment of the cold bath is due to the failure to bring about perfect reaction, which can always be secured if it is properly employed.

BILATERAL PLEURISY FOLLOWING CARCINOMA OF THE BREAST

BY HERBERT F. PITCHER, M.D., HAVERHILL, MASS.

MRS. C., age forty-s x years, noticed a small lump in left breast seven

years ago. Her physician advised her not to trouble it unless it troubled her.

In January, 1906, she consulted a doctor who advised X-ray treatment. She followed this advice and received that treatment for one year and a half, with the result that the growth rapidly increased in size.

She consulted me in July, 1907. I found a hard tumor which occupied the whole left breast, being as large as a good-sized cocoanut. The X-ray treatments must have been very mild indeed, for the one hundred and fifty applications of the X-ray had not even tanned the skin. I advised immediate removal of the breast. She had the operation performed August 1, 1907.

As the patient lived a few miles out of town, I did not see her again until April 14, 1908, when I was called in consultation with her attending physician. She had been in fairly good health until within six weeks. She had lost twenty pounds in that interval. Her appetite was poor, her sleep disturbed, and there was extreme dyspnea. She coughed constantly upon movement, and her face was dusky. The temperature was normal, pulse 140, respiration 60. The site of the amputated breast was in a healthy condition. There were no nodules in the scar of the breast or axilla. Upon examination both pleuræ were found to be about as full as possible and permit any respiration to take place. The effusion was first noticed six weeks previous, and she had been aspirated at intervals of five to seven days, obtaining two quarts of fluid from each side.

She had been seen by several medical and surgical men, and all agreed that there was nothing to be done except keep her comfortable by aspiration. The diagnosis was metastasis of the carcinoma.

I advised the Roentgen ray as being the only chance of reaching the diseased tissues. As soon as she recovered from the next aspiration, she was, with difficulty, brought to my office. I gave her treatments of ten minutes' duration every day or every other day, depending upon her ability to come to the office. She improved from the first treatment. During the first month's treatment she was aspirated three times; during the second month twice, and during the third month only once. Since that time no aspiration has been performed. She has gained ten pounds in weight, her appetite is good and her skin is clear and of a good color. On the left side the resonance is normal, the right is normal, except a dullness over the lower half, which would seem to indicate incysted fluid.

She has received no treatments since July. I used in the treatments a sixteen-inch Shiedel coil, a seven-inch water-cooled tube, with a fairly high vacuum, omitting rays of penetration, No. 6 to 8 Benoist's scale. Tube distant from the patient, sixteen inches from anode to patient. Time of exposure, ten minutes.

The pathology of the case is not quite satisfactory, but it shows what the Roentgen ray can do in some desperate cases. The aspirated fluid upon examination was found to be negative, but it had the appearance of tubercular serum.

THERAPEUTIC NUGGETS

SOME COUGH REMEDIES

Ammonium Mur.— When your patient tells you that there is a constant tickling in the throat or larynx, with cough on attempting to talk, especially if the secretions are scanty, you will win his gratitude by prescribing two to five grains of this drug every two hours.

Spec. Med. Bryonia.— When you are asked to prescribe for a hacking cough that seems to proceed from some irritative substance, especially if it is accompanied with sharp pain in the serous tissues of the lungs, this remedy will prove curative. Add five to ten drops to four ounces of water, and direct your patient to take a teaspoonful of the mixture from every half hour to every two hours, according to the severity of the coughing spells.

Spec. Med. Collinsonia.— There are met sometimes coughs that arise from an excessive use of the voice. They are almost invariably located in the larynx, and associated with sharp, sticking pains in this organ. Collinsonia is almost a specific for this condition. Add from half a drachm to a drachm of the spec. med. collinsonia to four ounces of water, and give in teaspoonful doses every one or two hours.

Sanguinaria Nitrate.— If you meet a cough that is dry and hacking, with tickling in the throat and a burning or irritative sensation in the nose, one grain of this drug added to four ounces of water and given in teaspoonful doses every one or two hours will prove curative. Sometimes it is necessary to continue the medicine for a long period of time. By so doing coughs of this nature have been cured which have persisted for years.

Sulphur 3x.— Where there is a persistent cough with a free expectoration of large quantities of a thick, yellowish or grayish-white secretion, the 3x of this agent will be of great benefit. Give it in doses of three grains every three hours.

Spec. Med. Lobelia.— Your patient complains of a sense of oppression and a feeling of fullness in the lungs that is increased by the coughing spells. Auscultation will reveal mucous rales through the bronchial tubes. In such conditions the value of this agent is speedily proven. Add ten to twenty drops to two ounces each of water and glycerin, and give teaspoonful doses every fifteen minutes to every two hours. The smaller dose and frequent repetition will produce results most quickly.

Hydrocyanic Acid.— If you have a stomach cough to contend with, where there is gastric irritation and a tongue that is red and pointed, put five drops of this acid in four ounces of water, and administer a teaspoonful every two hours, and report your success.

DEPARTMENT OF DIETETICS

THE DIETETICS OF SUGAR

By J. A. DENKINGER, M.D., BOSTON, MASS.

Continued from page 56.

CARBOHYDRATES IN DIABETES

IN diabetes we have a disturbance of carbohydrate metabolism in which the patient has partly lost (the power to assimilate carbohydrates is probably never completely lost) the power of assimilating carbohydrates, and the unassimilated material passes into the blood and eventually appears in the urine.*

The claim, that the excessive use of carbohydrates, especially of sugar, favors the development of diabetes *directly*, remains unproven. It must be admitted, however, that when starches and sugar, especially sugar, are taken in excess, they are very liable to produce metabolic disturbances and diseases dependent upon abnormal metabolism, such as obesity and possibly gout. The frequency with which obesity is associated with diabetes suggests a close relation as to cause and effect. A number of authorities on diabetes incline to the view that there is a more or less close relation between excessive carbohydrate ingestion and the occurrence of diabetes amongst them. Cantani (quoted by Fitcher, Osler's system, Vol. I), who reports that the majority of his diabetic patients subsisted largely on a farinaceous diet. The Ceylonese, who suffer much from diabetes and are large sugar eaters, are also quoted in support of the above theory.

On the other hand, the Chinese and Japanese rarely suffer from diabetes, although their diet consists largely of carbohydrates. The same applies to the negroes of our Southern states and Central America, who eat very freely of sugar cane and its derivatives, and, as is well known, the negro is singularly free from diabetes. There is also much evidence that diabetes is fully as frequently due to the excessive use of meat, and over-eating in general, as to excessive carbohydrate ingestion, diabetics being fully as common amongst big meat eaters as small meat eaters, if not more so.

To fully appreciate the (partial) loss of the sugar-assimilating function,

*When glycosuria is due to excessive ingestion of sugar, such as an over indulgence in sweets by children, it is called alimentary glycosuria, and has no pathological significance, although the continued over-taxing of the glycogenic function is sure to weaken it.

which is the chief phenomenon in diabetes, it should be remembered that the diet of the average individual is composed of fully three fifths of carbohydrate material (starch and sugar), one of the chief sources of heat and energy. In the diabetic a very large portion of the carbohydrates ingested is lost to nutrition, and escapes in the urine. "This implies, not only a loss of nutriment, but a waste of digestive energy, irritation of the tissues by the unused sugar, and a growing decrease of carbohydrate tolerance by the tissues" (Edwards).

The treatment of diabetes is largely dietetic, representing a more or less complex problem of sugar metabolism, but it is not so much a matter of dietetic restriction as of dietetic regulation; it is not enough to eliminate from the diet sugar and such articles as are readily convertible into sugar. The problem is to restore or at least to strengthen the sugar-assimilating power of the system. Apart from the glycosuria, the dietary must take into account a number of other conditions. The patient's strength and body weight must be maintained, if possible. It is useless to try and suppress the symptom glycosuria when the patient's strength fails rapidly and he emaciates. The maintenance of the patient's strength and comfort should be of prime importance, and underfeeding should be carefully avoided. The patient's loss or gain of body weight should be determined by frequent weighing.

The rational dietetic treatment of diabetes involves at least an approximate knowledge of what the patient ingests as well as what he excretes.

The amount of sugar excreted during twenty-four hours must be considered along with the amount of food ingested during that period. The physician should also have a working knowledge of the composition of starch and sugar containing foods and their caloric value, and should know how to replace the excluded carbohydrates with other food stuffs so as to satisfy the caloric requirements of the system.

THE STRICT DIABETIC DIET

What is known as the strict diabetic diet consists exclusively of proteids and fats, all carbohydrates, whether in the form of starch or sugar, being rigidly excluded. By virtue of its high caloric value (over twice that of carbohydrates and proteids), and the fact that, like carbohydrates, it is a proteid sparer, and that its ingestion never causes or increases glycosuria, fat takes a high place as a substitute for carbohydrate in diabetes, and should be given liberally, especially in serious cases, where loss of weight is very much marked. Butter, cream, olive oil, fat meats, bacon, and the more oily nuts should be freely used. Unfortunately fats, unless used in great moderation, are less digestible, and prove less palatable to most persons, than proteids and carbohydrates; fats are also

very poorly absorbed when ingested without carbohydrate-containing food.

Over-indulgence in fats should also be guarded against on account of its tendency to cause intestinal putrefaction, fatty diarrhœa, fatty infiltrations, and gastro-intestinal troubles generally.

As to an exclusive meat-fat diet, it has been found that it is impossible to adequately nourish most diabetics on such a diet for any great length of time. It offers too little variety; patients soon tire of it and turn from it with disgust, and what is more serious, an exclusive meat-fat diet is insufficient to supply the number of calories necessary to maintain the body in health. There are but few authorities to-day who insist on an exclusive diet of fat and proteid, except for a short time. As Stark puts it, "A rigid exclusion of sugar and starches in the treatment of diabetes is a thing of the past."

DANGER OF EXCLUDING CARBOHYDRATES FROM THE DIET OF THE DIABETIC

Acidosis and Coma. The source or rather the sources of the acetone bodies are not definitely known (Abderhalden, *Textbook of Physiological Chemistry*, American edition, 1908) it is, however, generally held by most authorities that the fats as well as the proteids are the sources of the acetone bodies. There is no question that the exclusion of carbohydrates in the diet of diabetics causes or at least favors acidosis, and the almost inevitable consequence of acidosis — diabetic coma.

"The greater the amount of proteid and fat in the diet, especially with absence of carbohydrates, the more acetone appears in the urine" (Osborne). On the other hand, the administration of carbohydrates arrests or reduces the acidosis (acetonuria and diaceturia). It is surprising how the administration of a small portion of carbohydrate material, such as cereals, bread, or potatoes, in cases that are on a rigid diet, or the addition of more carbohydrate in cases that are receiving a small quantity of carbohydrates will cause these dangerous phenomena to disappear.

"An excessive acetonuria usually can be arrested by exhibiting measured quantities of carbohydrates, beginning with fifty grams and going up to one hundred grams daily" (Stark).*

Withdrawal or reduction of meat in the diet also results in a great increase of carbohydrate tolerance. With the appearance of the first signs of coma, carbohydrate food should at once be administered. Too rapid withdrawal of carbohydrates may also cause acidosis as well as coma, and should be avoided in arranging for a test-diet to determine the severity of the disease.

Practically all authorities of to-day agree that it is unjustifiable to

*Richter, while satisfied that the administration of carbohydrate reduces acetonuria, limits the good effects of carbohydrate addition to those cases where a considerable portion of the carbohydrates can still be utilized; when this is no longer the case, we must not expect to influence the acetonuria.

withdraw carbohydrates absolutely or too rapidly from the diet of diabetics. Osborne believes that "many a patient with diabetes has been hurried to his grave by a rigid starch-free diet," and adds that "the fraudulent fact that most so-called starch-free gluten foods contain more or less starch, has allowed many a diabetic to live months longer than a starch-free diet would have allowed."

According to Croftan, only a small minority of cases are altogether unable to utilize any sugar, these are the very grave cases. In these it may be necessary to withdraw all carbohydrates for a time.

LIMITATION OF CARBOHYDRATE INGESTION

While it is unquestionably true that most diabetics can utilize some carbohydrates, and it is bad practice to withhold them permanently, it is equally bad practice to give too much.

By restricting carbohydrate ingestion or keeping the carbohydrates from the food *for a time*, less sugar is produced, and less work in the way of metabolizing the sugar is demanded of the system. The amount of carbohydrates permitted is determined by the patient's assimilation limit for sugar, which should be rarely exceeded. It is safest to keep the amount of carbohydrates *well within* the boundary line of assimilation. If this precaution is not observed, what, at the beginning, may be considered a mild form of diabetes may rapidly change into a more severe form.

"By over-taxing the sugar-destroying function we are apt to 'fatigue' this function and lead to increased inability on the part of the body to utilize sugar" (Osborne).

But the chief reason for keeping the amount of carbohydrates well below the individual carbohydrate toleration limit is for its undeniable curative effect.

"The reduction of the carbohydrates considerably below the tolerance of the patient, or excluding them for a time from the diet, places the sugar-destroying function at rest, and thus enables it to regain its old power, just as inversely the crowding of the carbohydrates to the limit of tolerance engenders fatigue of the already impaired function, and hence reduces the tolerance of the organism for sugar" (Croftan).

"Resting" the sugar-consuming function by the withdrawal of carbohydrates from the diet for a time, and then adding a small quantity of carbohydrates, gradually increasing same, develops its power and results in a more or less complete restoration of that function.

"The principle involved is the same as that applied in the treatment of other organs that have become for the time being incompetent. It is the same principle that is applied in the treatment of an incompetent heart, where, by placing the patient at rest in bed, the heart again acquires tone and becomes tolerant of an amount of physical work that before it could not endure" (Herrick).

To be Continued

THE MEDICAL ROUND TABLE

DRUG THERAPY

TEA AND COFFEE AS DRINKS

EDITOR JOURNAL OF THERAPEUTICS AND DIETETICS:

Reluctantly I take issue with Dr. French in his article on tea and coffee, in the September JOURNAL. I accept his doctrine as to tea, believing that most commercial teas are abominable impurities of coloring and other deleterious adulterations, entirely unfit for domestic use. But when coffee is attacked on the same line of assault, I rise in arms. I concede that bread, milk, or any article of food or drink, may be injuriously abused, as Dr. French admits, the drinking of two and even three cups of strong coffee at breakfast, an excess ample to have provoked nervous headache, due to over-stimulation of the heart early in the day, aided, very probably, by the Paris green in his tea at dinner.

Another thing overlooked by Dr. French is that while coffee in moderation aids digestion, in excess it assumes an astringent property; and I will wager that he had faulty digestion all the time he had headache, save only when nature revolted and gave him a sharp turn of diarrhoea, transforming digestion into fermentation, with the result of aggravating his headache — which a glass of good lemonade on an empty stomach, followed in half an hour by a small cup of black coffee and half hot milk, at a light, nutritious breakfast, would have cured in a month.

Coffee grows here luxuriantly, and is extensively used by all classes, yet I have never met a case of physical disorder for which the "fragrant berry of Arabia" was responsible, while new rum kills off the natives like the plague.

ROBERT GRAY, M.D.

Pichucalco, Chiapas, Mexico.

I accept the doctor's criticisms gladly. It is worth a good deal to feel that one has written a paper that is of enough interest to cause a man like Dr. Gray to "rise in arms" to answer it. But if he will note the conclusions to my article he will see that I did not take any extreme ground, but warned against the excessive and improper use of tea and coffee, rather than against all use of them. He judged rightly as to the effect of coffee upon my digestion. What the lemonade would have done, I cannot say; but as for the coffee, black or brown, please excuse me — I am happier without it.

J. M. F.

LYCOPIN IN RESPIRATORY AFFECTIONS

EDITOR JOURNAL OF THERAPEUTICS AND DIETETICS:

Is it possible that we have in lycopin a remedy of unusual power in the respiratory affections so common at this season of the year? I have been interested in noting its action in several cases, using the standard granule of the concentration (A.A. Co.), one sixth grain. It seems to have a decided effect on the bronchial mucous membrane, lessening the cough and relieving the annoying irritation. It is easily taken, two granules hourly, having a decided action. I believe it will be found very beneficial in cases of the grip, where the irritating cough that follows the first onset of the disease is the most annoying feature. It seems also to have a tonic action, increasing the appetite and imparting strength. In a recent severe case of haemoptysis, I found it to be a very useful remedy. The patient had had several previous attacks, and they had always proved very obstinate. The recent attack was of unusual severity, and having recently seen lycopin advocated for this condition, I resolved to try it in this case. It certainly worked well. The hemorrhage was controlled in a very short time, and the cough was greatly relieved. The weakness that usually follows the attacks was not nearly so pronounced as usual, and recovery was rapid. Perhaps it is too early to do more than advise giving it a trial, but I am confident that it will be found very useful during the coming winter, and I trust that other reports will be received.

W. L. JOHNSON, M.D.

Uxbridge, Mass.

This report is one of the results of our paper on *Lycopus Virginicus*, for which see the issue of May, 1908, page 230. Dr. Johnson is a careful observer, and we hope for many more similar reports from him and others. It is only in this way that we can arrive at a working knowledge of drugs. We again invite attention to the four drug plants, *verbena hastata*, *solanum carolinense*, *populus tremuloides*, and *lycopus virginicus*, concerning which we are conducting a collective investigation. The Round Table is open to reports concerning them, whether favorable or unfavorable, and we again invite all our readers to send them in. J. M. F.

VERBENA IN EPILEPSY

EDITOR JOURNAL OF THERAPEUTICS AND DIETETICS:

A boy of seventeen, epileptic two years; convulsions usually mild, but occasionally severe; not very frequent, averaging about one a week; had been under the bromide treatment, which had exercised some degree of control over the attacks.

Upon your suggestion I decided to try the effect of verberna, and ordered the fluid extract of verberna, P., D. & Co., twenty-five drops four times a day. Under this treatment the boy grew worse instead of better. At the end of a week, finding that the attacks had been more frequent, and also more severe than usual, I decided to abandon the treatment, and advised a return to the bromides.

I do not attribute the unfavorable turn of the symptoms to the verberna, but rather to the withdrawal of the bromides.

J. J. DUGGAN. M.D.
Milford, Mass.

The second case which I treated with verbenin was similar to this one, in that the patient grew noticeably worse under its use, and I was compelled to advise a return to the bromide treatment, which had controlled the convulsions to some extent. These two cases emphasize the point on which I have always insisted, that while verberna is of great value in some cases of epilepsy, in other cases it is useless, and even injurious; and that the best results are usually obtained in those cases which are not helped, but may even be made worse, by the bromides. Indeed, there seems to be a therapeutic antagonism between the two drugs. *Solanum carolinense* seems to be applicable to the same class of cases as the bromides, and to lack their injurious effects.

It is to be noted that this case was treated with the fluid extract, while most of the cases which have been reported have been treated with the concentration, verbenin, made by the A. A. Co. It is not to be supposed that the effects greatly differ, however. Now let us have further reports, with a view to determining more definitely the special indications for verberna in epilepsy.

J. M. F.

DIETETICS.

RECTAL FEEDING

Query: Please give indications for nutrient enemata along with method of procedure and one or two practical formulæ.

Answer: It is now generally admitted that sufficient nutriment is capable of being absorbed from the mucous membrane of the large intestine to sustain life for a considerable period. Complete utilization of the food injected per rectum is, of course, out of the question, the waste, even under favorable conditions, being fully fifty per cent, and only about one quarter to one half of the nutriment required by the body can be absorbed by the rectum.

Although some authorities continue to peptonize milk, eggs, etc., intended for rectal feeding, it is now pretty well established that the peptonization of the food stuffs generally used in the preparation of nutrient enemata is unnecessary. The addition of salt to nutrient enemata aids materially in their absorption, and should never be omitted; this applies particularly to milk and eggs and other foods containing albumen. All three organic food elements are capable of absorption from the large intestine, but the carbohydrates seem to be better utilized than the proteids and fats (Reach).

Sugar is rapidly absorbed, but should never be given in a solution much exceeding ten per cent, as too concentrated a solution of sugar irritates the mucous membrane of the bowel, is liable to ferment and form gas, distending the bowels and expelling the enema. Strong sugar solutions, moreover, tend to result in diarrhoeal stools.

Of the sugar family, dextrose and maltose have been found specially useful. The dextrinized and malted infant and invalid foods of commerce, which contain fully eighty per cent of maltose and dextrin besides the soluble albumenoids derived from the cereals have proven eminently successful as nutrient enemata in the hands of both American and European clinicians. The same applies to malted milk (Horlick's).

Starch (which is changed into sugar in the large intestine) is also readily absorbed and has the great merit that it does not irritate the rectum. Raw beef juice is another readily absorbed food. The same applies to preparations of preserved beef's blood such as bovinine.

Egg albumen is also easily absorbed; contrary to earlier teaching, it does not require peptonization, provided a pinch of salt is added. Eggs (the yolk as well as the white of the egg) constitute one of the most desirable additions to nutrient enemata.

Fats are (relatively) poorly absorbed.

The most popular food combination for rectal feeding consists of milk and eggs.

The addition of a little red wine to nutrient enemata is advisable on account of its astringent properties (tannin) which favor retention. Opium is rarely necessary unless the bowel is very intolerant, in which case a little laudanum (3-5 minims, sometimes twice that amount) is to be added.

Opium undoubtedly tends to prevent peristalsis and thus favors retention of enema, but it also interferes somewhat with its absorption.

The "indications" for rectal feeding are well stated by Davis (*Dietotherapy and Food in Health*) viz: "Rectal feeding should be resorted to whenever food cannot or will not be swallowed, cannot be retained in the stomach, causes intense pain in throat or stomach, when too little can be taken by the mouth to maintain strength, or when food is not absorbed

from the stomach or passed on into the intestines, as when there is cancer of the pylorus, or when it is desirable to rest the stomach, as in cases of gastric ulcer and severe gastritis."

As to method of giving a nutrient enema: First, say about one hour before giving the nutrient enema, wash out the bowel with a physiological salt solution or soap and water, at a temperature of about 98-99 F., to cleanse the rectum from mucus and feces.

In giving the nutrient enema, the patient should lie, if possible, upon the left side, with hips well elevated by one or two pillows. The best instrument for giving the injection is a soft rubber catheter (about three eighths inch in diameter) attached to a rubber tube connected with a funnel or bag capable of holding eight to ten ounces. The catheter should be passed as high as possible into the colon (10-12 inches), as this will favor the retention of the injection. The enema should next be introduced under low pressure, the funnel or bag not being raised more than eighteen inches above patient's hips. The temperature of the enema should be about 90-95F., as a solution too hot or too cold is apt to be rejected. The time occupied in giving an enema should be about fifteen to twenty minutes. If the enema is given slowly and carefully, a pint or more may be retained by an adult. Some authorities advise the use of small injections, 60-100 CC at intervals of two to three hours, but the weight of authority is in favor of larger injections, say 200-250 CC (8 oz.) Large injections have the advantage that they do not require such frequent repetition, which is to be avoided on account of its tendency to render the bowel intolerant. Three enemas during twenty-four hours, at intervals of not less than six, and preferably eight hours, will be found most practical. After receiving the enema, the patient should lie as quietly as possible for at least an hour, and be instructed to try and retain the injection. A piece of cloth or towel held or pressed against the anus for fifteen minutes or more is often of great help in retaining an enema in danger of expulsion.

As to formulæ, Dr. Pfaff's favorite nutrient enema consists of

200 CC of milk
1 egg (whole)
1 tablespoonful of California Red Wine
and 1 pinch of salt.

This formula does not require peptonization. It has a caloric value of about 225. The formula which has given me the best results and is very simple consists of

1 oz. of Malted Milk (Horlick's) dissolved in 7 oz. of water (to which is added sufficient salt to correspond with a normal salt solution), 2 eggs, well beaten, 2 tablespoonfuls of claret.

Caloric value of enema, about 275 calories; it should be given three during twenty-four hours.

The carbohydrates in malted milk are in the form of maltose, dextrin, and lactose, which are readily absorbed, the proteids in malted milk are also in soluble form, and are readily absorbed by the mucous membrane of the large intestine. If the rectum is unusually irritable, I add a few drops of laudanum or replace the water in the salt solution by rice water or arrowroot water.

BOOK REVIEWS

Catechism of Hæmatology, by ROBERT LINCOLN WATKINS, M.D., Professor of Hæmatology in the Eclectic Medical College of the City of New York. Published by the Physician's Book Publishing Company, New York & London. Price, \$2.

For nearly a quarter of a century Professor Watkins has been making a study of the blood and its reference to disease. The result of his labors have been produced in this little book, which is full of meat for the thinking physician.

It is divided into two sections, "Normal Blood" and "Pathology." In each the subject matter is arranged under the form of questions and answers. This adds much to the effectiveness of its teaching. The progressive physician will add it to his library and carefully study its pages.

The Eclectic Practice in Diseases of Children, for Students and Practitioners. By WILLIAM NELSON MUNDY, M.D., Professor of Pediatrics in the Eclectic Medical Institute, Cincinnati, Ohio. Member of the National, ex-president of the Ohio and Northwestern Eclectic Medical Associations. Second edition, revised, rewritten, and enlarged. Fully illustrated. 8vo, 512 pp. cloth, \$3. The Scudder Brothers Co., Publishers, Cincinnati, Ohio.

Professor Mundy is to be complimented upon his book, and the position that he takes concerning the usefulness of drugs in the establishment of the normal condition in children that have from any cause wandered astray. He believes in the efficacy of drugs, and gives his readers definite instructions how they should be used in order to produce the desired results. Such a book is a godsend to the medical man who is not sure of the dependability of the treatment of disease by means of medicinal agents. All the good words said of the first edition may be applied to this with the additional encomium that it is fully up to date. It should have a large sale.

The Physician's Visiting List for 1909. Fifty-eighth year of its publication. Published by P. Blakiston's Son & Co., 1012 Walnut St., Philadelphia, Pa. \$1.

A book that can retain its place for over fifty years needs no words of praise. Its old users will be sure to procure it, and those new to its merits will certainly do well to adopt it for their pocket companion.

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EDITORIALS

DIETETIC SYSTEMS AND RULES

AUSTIN FLINT declares that he has never known a dyspeptic to recover vigorous health who undertook to live after a strictly regulated diet, or an instance of a healthy person living according to a strict dietetic system who did not become a dyspeptic.

There is no kind of a crank more disagreeable to live with than a food crank. He is not satisfied with regulating his own diet by an unvarying rule, but he wants to regulate yours by the same rule. For example, he believes in the two-meal-a-day system as necessary to the physical salvation of the race. Straightway he starts a no-breakfast club, and urges you to join it. The fact that the experience of the world for many thousand years has shown that most people thrive very well on three meals a day has no force with him. He holds that most people eat too much, and puts that fact — or fancy — forward as his principal reason for advocating two meals a day; regardless of the other fact, so often conclusively shown, that the great danger of two meals a day for most people is that by this means they will become ravenously hungry and eat

too much, thus overloading their stomachs and bringing on the very evils they were trying to avoid.

Along with this, another cardinal principle with him is, that nearly all diseases can be cured by going without eating. And so they can, if only the fasting is continued long enough. It does not count with him that the treatment which cures the disease sometimes kills the patient.

It may be that he has found some particular article of food to disagree with him, and straightway he is positive that it must also disagree with you, at least it ought to. If his stomach cannot digest cheese, it is a sin for you to eat cheese. If meat is not good for him, then you must not eat meat. It makes no difference to him that a good many people have eaten meat all their lives and died of old age. If coffee gives him a headache, no sooner does he discover that fact than he enters into a crusade against coffee drinking. He has yet to learn, and probably never will learn, that each man's stomach is his own, and differs in some important respects from his neighbor's.

I had one of these men as a patient for a good many years, and knew him intimately as a neighbor and friend. He was an estimable man, of more than common intelligence in certain lines. He was a genuine lover of mankind, and was filled with a consuming desire to teach the world how to live, and especially how to eat — or, I had almost said, how to go without eating. His constant cry was, less food and more air. Was anything the matter with him, he treated it by cutting off most or all of his usual small supply of food, and indulging in an extra amount of deep breathing. Especially was this his favorite method of treating a common cold, a malady from which he considered it quite disgraceful to suffer. If he did not succeed in breaking it up in this manner, it was only because he did not carry the starvation treatment quite far enough.

Like most men who follow a fad, there was much of good in his theory, but when carried to the extreme to which he carried it, it didn't work well in practice, as his own experience proved. He died of pneumonia and innutrition, a victim to his own system, a pitiful example of an under-fed and poorly nourished man, with no resistance and no vitality, dying where he ought to have lived.

The lesson of it all is contained in the opening sentence from Austin Flint. There are no universal rules of diet. There is no strict dietetic system which is worth following. A man's instincts and appetites are worth a good deal in determining what he had best eat, but even these cannot be safely followed to the limit. He must use common sense, observation, and good judgment to decide what is best for him — and then allow his neighbor the same right. He may eat what he likes, provided it doesn't hurt him. But that "provided" is a large word.

J. M. F.

AN OPEN LETTER

It gives us great pleasure to announce that we have secured another live snake, a *Lachesis Mutus*, in fine condition, from which a quantity of venom has been extracted. This fact is attested by Prof. Raymond L. Ditmars, curator of the Reptile House, Zoölogical Gardens, in this city. We are therefore prepared to furnish the profession with fresh triturations and dilutions of the various potencies of the *Lachesis Mutus* (bush-master) and *Lachesis Trigonocephalus* (lance-headed viper), under seal, whichever the physician may desire. We have no inclination to enter into a discussion in regard to the statements which have been made in certain trade journals controlled by a competing house, as to the correctness of the facts given in their own publication, the American Homeopathic Pharmacopoeia, and other works published by them, our one aim being to furnish the profession with fresh preparations of exactly the remedies called for.

Respectfully,

BOERICKE & RUNYON,
Homeopathic Chemists,
11 West Forty-second Street, New York.

November 12, 1908.

TO WHOM IT MAY CONCERN

This is to certify that we witnessed the operation of extracting the venom from the fangs of the live *Lachesis Mutus* (bush-master), by Prof. Raymond L. Ditmars and his assistant, Mr. Charles E. Snyder, at the Reptile House, Zoölogical Gardens, on Nov. 8, 1908, and the same was delivered to the owners of the serpent, Messrs. Boericke & Runyon, Homeopathic Chemists.

Signed:

ROYAL S. COPELAND, A.M., M.D.,
Dean New York Homeopathic Medical College and Flower Hospital.

WM. TOD HELMUTH, M.D.,
Professor Surgery, New York Homeopathic Medical College and Flower Hospital.

JOHN B. GARRISON, M.D.,
Director of Drug Proving, New York Homeopathic Medical College and Flower Hospital.

O. R. LONG, M.D.,
Medical Superintendent State Asylum, Ionia, Michigan.

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DEPARTMENT OF THERAPEUTICS

TREATMENT OF DELIRIUM TREMENS

BY T. D. CROTHERS, M.D., SUPT. WALNUT LODGE HOSPITAL,
HARTFORD, CONN.

THERE is no subject about which physicians will differ more widely than this, and, curiously enough, there is no form of disease in which the mortality will vary anywhere from one to fifty per cent, and it is this wide variation in the mortality that suggests stupidity and failure in the methods of treatment.

Not long ago a man of some note boasted that he had reduced the mortality below twenty per cent in the cases under his care in a certain hospital, and then proceeded to describe at great length the exact remedies used, the most prominent of which were opium and chloral.

Another medical man used large quantities of brandy and milk, and believed that feeding was the chief remedy. Almost every narcotic known has been used in the treatment of this disease, and has been praised for its particular value, and very long, exact descriptions of how it acted have been given in detail.

In all this there is confusion and failure to understand the very first essentials of the conditions which are manifest in the symptoms of delirium tremens. This condition is practically poison and starvation, with a very great variety of pathological states, both functional and organic.

The wild delirium and delusional condition is from complex poisoning; and the continuous use of alcohol, on the supposition that its withdrawal will be followed by collapse, is not sustained by any studies or practical experience.

The reality of depression and so-called collapse conditions is pure fiction. The removal of alcohol simply takes away an irritant cause, and in some conditions may reveal functional or organic disorders. There can be no collapse from this. There will be a change of symptoms, but a return to the normal, although the exhaustion and other conditions may not indicate it at the time.

The man who has used spirits continuously in so-called moderation has, undoubtedly, sclerosis, fibrosis, and changes in the artery walls, and the time comes when the accumulative irritants become sources of active inflammation and paralysis.

Whole areas of the brain are cut off, and do not act in harmony with others. As a result, delirium, delusions, and various changes with alarming symptoms follow.

The first principle in treatment is to remove the active causes and divert the disordered nerve energies. Alcohol must be removed at once. Hydropathic measures appealing to the skin will divert these nerve energies which have been disordered by the use of spirits. Hence, the best remedy is the removal of alcohol, and the application of hot and cold water, either in the form of showers or tub baths, or sponges on the surface.

Water given internally, frequently salines, or small doses of calomel are of great value. All narcotics must be stopped the first twenty-four hours until after thorough purging and sweating has been secured. In a certain jail, in a large city, a physician has instituted a plan of treatment for all delirium tremens cases brought in that has been followed with less than one per cent of mortality.

This is mentioned to show what is possible. The patients admitted are taken from the street and from boarding houses, and are practically chronic and most degenerate cases.

They are brought to the jail in states of delirium and delusions of the most pronounced character. The treatment consists of an active dose of calomel and warm showers every two hours, with vigorous hand rubbing at first, then, later, hand massage. Two strong attendants are put in charge of the patient, and if his skin is dry and husky, he is placed in a cabinet bath with a temperature of one hundred and fifty, and kept there until he perspires freely. Then he is put under a shower and rubbed.

This is repeated at least twice a day. In the mean time showers are given, and the patient is wrapped up in warm blankets in a cool room. Saline cathartics are given until the bowels move freely. Bowls of malted milk or hot soups with rice are given every two hours.

The delirium nearly always subsides in twenty-four hours, and the patient falls into a quiet sleep, when the baths are diminished and the foods are given at long intervals.

Little or no medicine is given, except calomel and epsom salts. If the secretions are very acid, soda solutions are given; if they are alkaline, different acid drinks are given. Later the patient is given cinchona bark, and perhaps the iodides or some form of mercury, if there is evidence of specific disease.

In two hundred cases treated there were only three deaths, and one of these was considered as due to injury received shortly before brought to the jail. This record of the most incurable cases indicates clearly what can be done along rational lines.

In private practice the following is a good example of what should be done:

Mr. A., who was a periodic drinker, after a protracted attack became delirious in his home. The doctor, a man of more than usual force of character, insisted that he should have his way, and took the patient out to the barn and placed him on a cot in the center of the carriage room, placing him in charge of two strong men who had orders to shower him every two hours, and tie him up with blankets in the mean time.

He was given large doses of salines, which acted promptly on his bowels, then was wound up in a cold pack until he perspired very freely. When his delirium was very intense he was showered with cold water, followed by hot, and vigorous rubbing.

The second day he was given hot soups, and the bathing and rubbing continued. The third day his body was hand massaged more freely than by water. The acute symptoms subsided, and he was taken over to the house and treated by sponge baths and hot packs for the next three or four days.

No chloral, opium, or any narcotics were given. His recovery was rapid. On another occasion under the care of this doctor, the patient was placed in a small bedroom, in the constant care of an athletic nurse, and given large doses of carbonated waters.

The patient being urged to drink at all times, and when perspiration broke out freely, hand rubbing with towels and sponges were used. Ice bags were put on the head and along the spine until the patient complained, and then they were removed and hot water substituted.

This patient, being a very athletic man, was taken out and exercised actively for ten or fifteen minutes at a time, then brought in and rubbed. His delirium subsided in a couple of days, and the case ended favorably.

Where the heart is feeble and there is evidence of fatty degeneration, quiet and a reclining position is very essential. In such persons it is advisable not to give large quantities of water at a time, so as not to distend the stomach and press on the heart.

Oftentimes injections of salines are very effectual, and profuse perspiration should be stimulated at the earliest possible moment. Concerning the withdrawal of alcohol, a great variety of statistics indicate beyond question a lower mortality, and more rapid recovery in cases where it is withdrawn at once.

It not unfrequently happens in influential families that the sudden withdrawal of spirits is bitterly opposed by the family and patient. In such cases it is often wise to use apomorphia in the spirits so as to produce nausea and relaxation, and impress both the patient and friends with the danger of continuing its use.

The common theory that some sort of narcotic is essential, and that the patient must have sleep before he can recover, is a dangerous one, and the attempt to bring about this result by opium, chloral, or any of

the dangerous drugs of this class is often followed by very serious results. Pneumonia is a sequela and hemorrhage is another prominent ending.

The vitality will not bear extreme depression. The danger point is unknown, and any of the narcotics may carry the patient beyond this point, and death follow. If hydropathic measures cannot be applied, some of the milder narcotics may assist to diminish the acuteness of the delirium, but there is always a peril in this which cannot be foreseen; even valerian hops and the mildest forms of sedatives will precipitate a fatal result.

Sulphate of magnesia in small doses has a very remarkable effect in many ways to overcome the toxins and produce a sedative action on the nerve centers.

On one occasion I gave by the needle a thirty per cent solution with distinct quieting effects. This is a remedy given in small doses which is rapidly coming into prominence. Its exact action is not understood. Another remedy given in very concentrated doses at short intervals has an equally marked effect, and that is solution of quassia.

Of course these are only temporary in their effects, but sufficient is known of them to warrant a further study. The quassia solution is simply quassia chips boiled down to a very concentrated degree, and given in two or three ounce doses, the patient using spirits at the time if he chooses to. The result is a very early disgust for spirits, and if to this is added suggestion, much the same effects are obtained as those claimed by the gold cures.

The general principles of treatment, in both private and public practice, should be starvation and removing of the toxins; diversion of nerve energies to the surface and elimination. In this it will be evident that narcotics are dangerous drugs.

But checking elimination produces other toxins. The delirium is very quickly broken up by hydropathic measures, and even if it continues for a long time, is of a mild character, and can be readily overcome by appeals to the skin.

Care should be taken in feeding the patient when the acute symptoms subside, not allowing the abnormal appetite to be gratified. The digestive system is enfeebled and is not able to care for foods at this time, except in small quantities and those most easily digested. Beef tea, while it is a stimulant, is an exceedingly dangerous one because of the liability to furnish appropriate soil for the growth of toxins. Uric acid at this time is not a stimulant, but rather a depressant, particularly if the system has been charged with acid before. Milk is another dangerous food at this time for the same reason that it is a germ carrier and a germ media for the promotion of new toxins. Cereals and foods of light character given in small quantities are much safer.

It not unfrequently happens that the cessation of the delirium is followed by an abnormal appetite and great prostration. Where food is given recklessly the delirium returns and the prostration increases. Two cases were recently noted where typhoid fever, terminating fatally, came on after the subsidence of the delirium. In one case the patient recovered and ate enormously of proteid foods, drinking milk freely. He was probably infected at this time, and the low vitality favored the acute development of the typhoid fever germs.

In the other case the friends of the patient insisted on giving large quantities of milk during the treatment. There was an equal probability that the infection came from the milk given at this time and was the active cause of the typhoid.

Another caution is quite necessary, namely, to avoid giving opium when the acute symptoms subside. A neurotic predisposition is very likely to be developed at this time, and not unfrequently an attack of delirium tremens has been followed by an opium addiction.

The after treatment of delirium tremens cases must depend upon the conditions, and in most cases should follow no specific rule. When delirium tremens occurs in a greatly debilitated person, drug treatment should be very cautiously given.

* In an almshouse, in the vicinity of a large city, where a number of such cases are received, a most successful treatment has been carried on under a tent in connection with frequent showers and exercise; no medicines being given at all.

The doctor claims that the good results are due to the open air and to the continuous use of water. Of course a force of attendants are necessary. In private practice, with proper help, such cases can be conducted to a favorable issue with a very low mortality. At all events, with any sort of favorable treatment, they are self-limited, and will recover naturally.

A STUDY OF THE TWELVE TISSUE REMEDIES

BY JOHN WILLIAM FYFE, M.D., SAUGATUCK, CONN.

NO. X. NATRUM PHOSPHORICUM — SODIUM PHOSPHATE

THE phosphate of sodium energetically influences the bones, glands, lungs, and abdominal organs. Its field of therapeutic action is, therefore, somewhat extensive.

Natrum phosphoricum has been extensively employed in the various forms of rheumatism, and is especially valuable when the finger joints

are involved. In inflammatory rheumatism, especially when the tongue is covered with a yellow coating, it constitutes a medicament of curative power, and in articular rheumatism in which there is marked evidence of a scrofulous basis, it is employed with gratifying results.

"I have used this remedy quite extensively in rheumatism, and it is the first remedy I think of. Whatever else I prescribe that I may find specifically indicated I give this one from first to last, and especially in the cases that have profuse or sour-smelling perspiration. Many physicians claim that the cause of excessive pain in the joints is due to an acid diathesis, and if this is so, it will account for the remedial effect of this drug in these cases. It is stated by good authority that a lack of this salt is one of the causes if not the prime cause of diabetes mellitus. It is also among our best remedies in liver diseases." (Kinnett.)

In acute gout, as well as in the chronic form of this painful disease, much benefit is derived from the administration of the phosphate of sodium.

In spinal anemia it is highly recommended, and in paralytic weakness of the lower extremities, with general prostration, heaviness, and a sensation of fatigue, especially after a short walk or ascending slight elevations it has been found a very efficient remedial agent.

In wrongs of the stomach, especially when characterized by loss of appetite and a yellow, creamy coating on the tongue, *natrum phos.* is used with satisfactory results, and in the treatment of patients who are nervous, irritable, anxious, and apprehensive of some danger, it is a frequently indicated remedy. In leucorrhœa, especially when the discharge is watery, it is deemed an agent of merit, and in the early stage of inflammation of the mammary glands it is often employed as a means of preventing supuration. It is also often useful in morning sickness during pregnancy, with vomiting of frothy, watery phlegm.

Natrum phos. has been employed in the treatment of the morphine habit, and it is claimed that in cases where this drug was continued for a long time complete cures were secured. In this condition it has usually been administered subcutaneously in glycerin and water.

Sodium phosphate is especially valuable in the treatment of children. In wrongs of life, affecting infants suffering from an excess of lactic acid, and caused by overfeeding with milk and sugar, it is frequently a needed remedial agent, and in catarrh of the tonsils, with a yellow-tinged exudation, associated with an acid condition of the stomach, it is of value. It is also a useful medicament in sore throat when the tonsils are coated with yellow, creamy mucus, and there is sensation of rawness, and in cases in which there is a tendency to rickets in poorly nourished children, especially when the stools are constantly clay colored, it is beneficially employed. In incontinence of urine with acidity it is restraining in its action, and in atony of the bladder it exerts a corrective influence.

Indications: Moist, creamy, or golden-yellow coating at the back of the tongue; sour eructations and sour vomiting; greenish diarrhoea; giddiness and vertigo, with gastric derangements; vomiting of a dark substance like coffee grounds; dyspepsia, with sour eructations and characteristic appearance of the tongue; flatulence, with sour rising; diarrhoea caused by excess of acidity, with sour-smelling stools, containing jelly-like masses of mucus; intestinal long and thread worms, with characteristic symptoms of acidity, or picking of the nose; yellow exudations and secretions.

Dose: Third trituration, 5 to 15 grains.

MYCOTIC DIARRHEA

By J. D. LYONS, M.D., N. Y. CITY

THE brilliant results following the use of glyco-thymoline in the various maladies of children, such as acute gastro-intestinal catarrh, mycotic or dyspeptic diarrheas, summer diarrheas, etc., have been so uniform and satisfactory that I feel it a duty as well as a pleasure to inform the medical profession of the fact, and give them the report of two typical cases out of the numerous patients afflicted with the different troubles above mentioned; and let me here state that I had previously used all of the different internal antiseptics recommended by authorities with variable, and in many instances very unsatisfactory results. In short, I have proven to my own satisfactory conclusion that glyco-thymoline is the only safe intestinal antiseptic available. Its frequent use has not been followed in a single instance by the least unfavorable symptom.

The usual treatment pursued in gastro-intestinal catarrh is to limit the food supply, no matter how the infant may be fed, to the least possible amount, endeavoring to bring about as far as possible the digestion of all, or as far as can be done, leave no undigested material to decompose and irritate the alimentary tube.

The following two cases herein appended will give you the final results attending the treatment of gastro-intestinal catarrhs by glyco-thymoline supplemented by judicious feeding and attention.

Katie M., infant of nine months, was brought to me suffering from an advanced condition of gastro-intestinal catarrh. The little patient was wasted to a mere skeleton. The skin of legs, buttocks, and back could be drawn up in folds. Temperature 102° F., stools were of a greenish-yellow color, of rice water consistency, and very decomposed. The pulse

was thready and very feeble. In fact, the little sufferer presented such an unfavorable appearance and condition that I could hold out no hope to its mother of its recovery. However, "where there is life there is always hope," so stating the case as fully and in as clear a manner as possible to the mother, I undertook the task of restoring, if possible, the little patient to health. For the first two days of treatment I permitted no milk food of any kind whatsoever, none of the different patent foods usually given in similar cases. Simply had the attendants give hourly four or five teaspoonfuls of albumen water, supplemented by occasional teaspoonful doses of meat juice. During the interval, between feeding, two teaspoonful doses of a mixture containing glyco-thymoline, two drams, aqua q.s., four ounces (previously boiled and cooled). This treatment continued for two days, was followed at the expiration of that period of time by a decrease of temperature, owing to the removal of the toxic factors to a great extent by the use of the antibacterial properties of the antiseptic. After the symptoms of auto-intoxication had almost disappeared I slowly returned to a modified milk food, prepared with Mellin's Food, pasteurized milk, and water (which had been previously boiled and cooled). In some instances I have found Horlick's Malted Milk prepared previously to give excellent results, but the main factor, aside from medication, in the treatment of intestinal troubles is the judicious feeding, i. e., give small amount of food well prepared so that the food is digested. Anticipate and prevent all intestinal fermentation by the use (as indicated) of glyco-thymoline. Well, in short, the case herein described slowly improved and went on to a complete recovery. She developed into as fine a child as one would wish to see.

The second case, that of a child two years of age, was brought to me after having gone the rounds of several dispensaries and physicians. He presented an emaciated condition. His facial appearance resembled that of a person several years older, pinched and drawn, etc., muscles flabby. The gastric symptoms were prominent, vomiting occasionally, nausea present most of the time. Mouth and gums congested and irritated, eructations of foul gases, febrile symptoms marked. His mother stated that he had never been free from fever since his first sickness, "which arose from his stomach." Upon a careful examination nothing of an organic origin could be found. At points along the intestinal tract tenderness was elicited, shown by drawing up of the limbs when certain parts of the abdomen were percussed or palpated. The stools, while not frequent, were semi-solid and fearfully fetid. My treatment commenced by the administration of a mild mercurial (mercury with chalk), followed by a saline, thus preparing the alimentary tube for subsequent treatment. I then gave him two dram doses every two hours of a mixture consisting of glyco-thymoline, \mathfrak{z} ijss, aqua, previously boiled, to make

3iv; chicken broth, modified milk with malted food, etc., given in small amounts at two hour intervals. After the first forty-eight hours temperature subsided, all symptoms of a morbid nature improved and the patient developed finely.

At the present time I am treating a babe of nine months, one of twins. The other one, the better of the two, is in apparent good health. The sickly one has been treated since shortly after birth (two months). The child presented, when brought to me, an emaciated appearance, stools horribly fetid and frequent, of a greenish-yellow color and thin. The treatment was commenced about four weeks ago, and at the present time the babe is slowly but surely improving. My last visit, made on November 7, 1908, found it very much improved, and I am satisfied that its full recovery is assured, if the antiseptic treatment commenced is adhered to.

A REMEDY FOR CONSTIPATION*

BY JAMES R. PHELPS, M.D., DORCHESTER, MASS.

In *Clinical Medicine* for June, under the heading, "Cascara," I read as follows: "We have yet to recognize an agent which acts upon the colon exclusively or even to a marked degree more than it acts upon the small intestines and upon the rectum. Such an agent would be exceedingly desirable could it be developed."

Well, there is just such an agent in the market. It was brought to my notice by a friend who seems to be well acquainted with many valuable remedies which are unheard of by the profession — at least in this region of "therapeutic nihilism."

I often have had cases of obstinate constipation in which ordinary cathartics were inoperative, until an impacted mass in the colon could be broken up by injections. In such cases I have found this remedy invaluable, and I have within the short time I have known of it broken up some severe cases of constipation of years' standing. It is an aquatic plant growing on the coast of southern China. This drug has no effect upon the digestive tract until it reaches the colon, when it moistens and softens the impactions, resulting in easy stools.

I do not write this to procure a free advertisement of this remedy, which is imported by a chemical house, and from whom I obtain it, for I have not yet found a druggist or practitioner in Boston who ever heard of it. It is mentioned briefly in the last edition of the U. S. Dispensatory.

It is not a "liver stimulant," and where constipation is the result of hepatic sluggishness or imperfect peristaltic action I do not presume

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to assert that it would be effective. It seems to possess a peculiar affinity for the lower colon, and to pass the stomach and small intestines absolutely intact. It is tasteless, and my favorite method of administration is to mix a teaspoonful of it with the cereal one has for breakfast, or in a dish of the plebian apple sauce.

As I remarked, I have no intention of procuring a free advertisement of this remedy in your valuable columns. Should this meet the eye of the importer he can avail himself of the columns of medical journals and thereby put a valuable agent in the hands of the profession, and save me from being swamped by a shower of letters of inquiry, not one in ten of which contain a stamp for reply.

I like your remarks regarding "eusoma." I have used this preparation extensively ever since Dr. Chamberlin put it on the market, and have found it invaluable in eczema and kindred diseases. It is an effective remedy for the brown-tail moth infection.

[The remedy referred to by Dr. Phelps is "regulin." The plant belongs to the same family as *fucus vesiculosus*, and is marketed by The Reinschild Chemical Company, New York.—ED.]

TRITICUM REPENS

BY J. M. FRENCH, M.D., MILFORD, MASS.

TRITICUM REPENS, or *Agropyrum Repens*, known also by the common names Couch Grass, Quick Grass, Dog Grass, and belonging to the natural order of Gramineae, is a perennial herb with a very long-jointed, whitish underground stem or rhizome, with a tuft of fibrous roots at each joint. The culm grows from two to four feet high, and is surmounted by the spikes. These are compressed, and three or four inches long. The leaves are flat and rough. It is a native of Europe, but has been naturalized in this country. It grows commonly in yards, fields, and gardens, and along roadsides, and flowers in June and July. Wood terms it "a vile herb," and it is commonly regarded as a nuisance, yet it is of use in many cases.

Triticum is a good example of a common plant, growing wild and not highly thought of, which has yet a positive value in medicine, and is worthy of a more careful study and more extended use than it has received. My own attention was first called to it by the recommendation of Sir Henry Thompson, in his work on the Diseases of the Urinary Organs, in which he advises its use in cystitis. He says: "The underground stem of *triticum repens*, or common couch grass, was introduced some years ago by myself. Of this I will only say, that it maintains its credit, and is undoubtedly

useful in many cases. For use, boil slowly from two to four ounces in a quart of water until it is reduced to a pint. The strained liquor is to be taken by the patient in four doses in the twenty-four hours. It was a favorite remedy with the old herbals; and it formed the staple remedy against what was called strangury, which a few centuries ago meant everything like pain or difficulty in passing water, no matter what the cause."

Potter calls it a demulcent, emollient, and feeble diuretic, and says it is chiefly used in irritable bladder. The infusion is a popular fever-drink in Europe, and has had a considerable reputation in dysuria.

Petersen says it is a mild, non-irritating diuretic, which allays urinary irritation and increases urinary secretion. It is thought of in prostatitis, pyelitis, purulent or catarrhal cystitis, irritable conditions of the bladder, gonorrhoea, and in fevers where a mild diuretic is desirable to increase the secretion of urine.

Blair says that it increases the flow of the watery portion of the urine, and is of positive value when the urine is dense and causes irritation of the mucous surfaces. Since it is non-irritating and entirely harmless, it can be given freely in irritable bladder, dysuria, cystitis, gonorrhoea, lithemia, prostatitis, and many other conditions.

Felter and Lloyd consider that it is diuretic and slightly aperient. They recommend it in excessive irritability of the bladder, cystitis, dysuria due to chronic cystic irritability, and incipient nephritis. They regard the infusion as the best preparation, and their directions for preparing the infusion are similar to those of Sir Henry Thompson, save that the official strength is one ounce to a pint. They give as the specific indications for its use, irritation of the urinary apparatus, pain in the back, frequent and difficult or painful urination, gravelly deposits in the urine, catarrhal and purulent discharges from the urethra.

Shoemaker recommends the use of triticum in irritable bladder and chronic cystitis. In combination with belladonna and bicarbonate of soda, he advises it in gleet and irritable prostate.

Ellingwood gives as the constituents of triticum, tritacin, silica, glucose, inosite, and mucilage. He considers that its action is solely on the urinary apparatus, and that it greatly increases the watery portion of the urine without to same extent influencing the actual renal secretion. He says the infusion not only quiets thirst, but keeps up free secretion of the kidneys, and hence is a good drink in fevers. He considers that while this agent is less powerful than many others, yet its influence in the proper cases is often more satisfactory.

I have used this remedy to a considerable extent in old men with irritable bladder and difficult urination, and have found it a very satisfactory drug. It is safe and harmless, and by its sedative action on the mucous membrane of the bladder, it relieves the irritation, and adds greatly

to the comfort of the patient. It increases the flow of urine, lessens the specific gravity, clears up cloudy urine, and relieves undue acidity. In all these ways it is of great benefit to the patient. In enlarged prostate it has done me good service by its soothing qualities. I have found the infusion to act more satisfactorily than the fluid extract.

The infusion is prepared by pouring boiling water, one pint, on an ounce of the rhizome or underground stems, and letting it stand for an hour. It should then be strained and given in the dose of a wineglassful several times a day.

The fluid extract is given in doses of from one dram to one ounce, well diluted with water.

The specific medicine, or specific triticum, is used in doses of five to sixty drops in water.

It may also be prepared in the form of a syrup.

It seems to impart its virtues quite as freely to water as to alcohol, and the addition of alcohol is certainly not desirable or beneficial to the action of the remedy.

It will be observed that there is a general agreement as to all the main actions of this plant. It is a safe and helpful drug.

Rise, for the day is passing,
And you lie dreaming on;
The others have buckled their armor,
And forth to the fight have gone;
A place in the ranks awaits you,
Each man has some part to play;
The past and the future are nothing
In the face of the stern to-day.

— *Adelaide A. Proctor*

LITERARY NOTE

An English-Chinese Lexicon of Medical Terms, prepared by DR. PHILIP B. COUSLAND, has just been published in Shanghai. Though the author is an Englishman by birth, he has based his book largely upon the Medical Dictionary of Dr. George M. Gould, of Philadelphia, a high compliment to American scholarship. Dr. Cousland has recently published a translation of Professor Halliburton's edition of Kirkes' Physiology.

PHYSICAL THERAPY.**FIRST STEPS IN MEDICAL ELECTRICITY**

BY HERBERT MCINTOSH, A.M., M.D., BOSTON, MASS.

CHAPTER IX**PHYSIOLOGICAL EFFECTS OF DIRECT, COIL, AND SINUSOIDAL CURRENTS.
METHODS OF APPLICATION.**

IN Chapter IV and V on the physiological effects of direct and coil currents it was shown that the characteristic effect of the former is to produce chemical change in the tissues, of the latter to produce stimulation. It remains for us to indicate in a general way the conditions to which these currents are applicable, and the best methods of applying them.

Polar Effects. Electrolytic action of the Direct Current.—The electrolytic action of the direct current is utilized:

- (1.) In the removal of superfluous hair, moles, and warts;
- (2.) In the destruction of nevi, port-wine marks, etc.;
- (3.) In the coagulation of blood in aneurisms;
- (4.) In the destruction of strictures of the urethra, lachrymal canals, etc.;
- (5.) In the destruction of hemorrhoids, external and internal;
- (6.) In the destruction of uterine fibromata, according to the method of Apostoli;
- (7.) In the destruction of cancerous tissue by mercuric cataphoresis, according to the method of Massey; and
- (8.) For the introduction of medicaments into the tissues by cataphoresis. The more particular consideration of these varied and important applications must be deferred to later chapters.

It is evident that in the above enumerated applications of the direct current the effect aimed at is principally a local one. This necessitates the use of an electrode upon the active pole especially adapted to the purpose in view, and usually, from its size and composition, capable of carrying a current of considerable density.

Where, however, the conditions to be effected are of a general or constitutional nature, that is to say, in the interpolar regions, there is little difference between the electrodes employed, except, perhaps, as to size.

Interpolar Effects. Generalized Action of the Direct Current.—Central galvanization: This is a method of applying the direct current to nerve

centers introduced by Doctors Beard and Rockwell, for the purpose of general electrization. It consists in placing the negative pole at the epigastrium, while the positive pole is applied to certain parts of the head,—chiefly the vertex and forehead,—to the sympathetic and pneumogastric in the neck, and down the whole length of the spine from the first to the last vertebra. Such applications are useful in neurasthenia, insomnia, hysteria, and other conditions of a similar nature.

Influence of the Galvanic Current upon the Muscles.—Experiments have been made tending to show that the passage of a direct current through a fatigued muscle refreshes and revives it. In several remarkable cases, reported by Dr. G. V. Poore, of London, it was shown that after a heavy weight had been supported at arm's length for seventy seconds, with production of pain and fatigue, the application of the direct current relieved both, and enabled the subject of the experiment to sustain the weight for an additional five minutes without difficulty and exhaustion.

Further experiment by the same investigator proved that not only the endurance, but the strength of the muscular effort could be increased by the use of the direct current. Having squeezed a dynamometer eight times with an average pressure of forty-eight and a half pounds, the subject of the experiment, with the aid of a light direct current, exerted in eight trials an average pressure of fifty-nine and a half pounds.

These results were confirmed by Capriati,* in 1899, who employed scientific methods of measurement. Having applied a direct current of from ten to fifteen milliamperes along the spine, he found that there was an increase of muscular power which persisted for one or more days.

Effect of the Direct Current upon Strychnine Poisoning.—It was demonstrated by Charpentier and Guilloz that the passage of a direct current through guinea pigs and frogs arrests the effects of strychnia poisoning. While the current flows there is quiescence, succeeded by characteristic tetanic spasms when the current is stopped. Death was averted by prolonged electrical applications.

Stimulating Effect of the Interrupted Direct, or Coil Currents.—D'Arsonval has proved that variable currents, by means of muscular contractions, increase tissue oxidation and quicken metabolism. These results may readily be inferred as a consequence of muscular activity.

Dr. Beard, in "Medical and Surgical Uses of Electricity," records the results of general faradization upon the growth of young dogs. They were treated daily with an induction coil current for a period of four weeks. At the expiration of that time they had gained in weight faster than had two other dogs, which had been untreated and used as controls.

A very interesting series of experiments upon the hamstring muscles of young rabbits, conducted by Debedat, and recorded in the "Archives d'Electricité Medicale," for February and March, 1904, led to the con-

*Archives d'Electricité Medicale.

clusion that in order to promote the growth of muscle the current should be interrupted, and that these interruptions should occur at regular intervals, at the rate of about thirty per minute, and that prolonged tetanization was hurtful.

Similar experiments upon human muscles, with the combined galvano-faradic current, interrupted thirty times per minute, showed after two months' treatment marked increase in the size of the muscles treated.

General Faradization.—The method described by Doctors Beard and Rockwell consists in placing a plate attached to one terminal of a faradic coil under the feet or gluteal region, and moving a moistened electrode attached to the other terminal over the body, giving two or three minutes each to the head, neck, back, abdomen, and extremities in order.

Galvano-Faradization.—A combination of direct and coil currents may be obtained by joining the negative pole of the galvanic battery with the positive pole of an induction coil. The combined current possesses the advantage of each of its components, and is well adapted for use in cases of defective or perverted nutrition, including anemia, chlorosis, neurasthenia, rickets, gout, rheumatism, arthritis, etc.

Physiological Effects of Sinusoidal Currents.—Having analyzed the effects produced by direct and coil currents, we are prepared to discover what effects, if any, are peculiar to sinusoidal currents. In the first place it must be evident that the chemical effects which are so characteristic of the direct current must be wanting in sinusoidal currents. Electrolytic action is a property of continuous currents, and is manifested but slightly in interrupted or variable currents. If then we eliminate electrolytic action, it must be evident that the peculiar sensation due to chemical decomposition in the tissues will be missing in alternating currents, and the disagreeable sensory effects which originate from this cause will therefore not be observed.

If now we turn our attention for a moment to coil currents, we shall note that an element in the disagreeable sensory effect produced by these currents springs from the sudden interruption of the current. In an alternating current the change of potential (Fig. 44) even when rapid is never abrupt. Compare the curves as shown in Figures 31 and 32, Chapter V, on the physiology of coil currents.

Alternating currents are therefore wanting in the disagreeable sensory effects due to chemical action which are characteristic of direct currents, and the irritating sensory disturbance due to the abrupt change of potential which are characteristic of coil currents. The peculiar property, therefore, of muscular stimulation which belongs to coil currents remains without the disagreeable sensory effects characteristic of such currents.

In Chapter V, on the physiology of coil currents, it was shown, by a study of curves (Fig. 33), that the interruptions of the current, as produced

by a vibrating hammer, are to an extent irregular and uncertain, so that the physiological effect produced by the same coil may vary from time to time even under the same conditions of operation, as far as they are under the control of the operator. This element of uncertainty is eliminated in the alternating current, for as the vibrating hammer is not required, and a variety of other co-operating conditions necessary to secure a given result in an induction coil may be disregarded, an alternating apparatus is at once simpler, and the results aimed at are more definitely attained. The field, then, for which the sinusoidal current is peculiarly suited is that of *muscular stimulation*, where it accomplishes its results without the disagreeable incident of sensory irritation.

FIG. 72

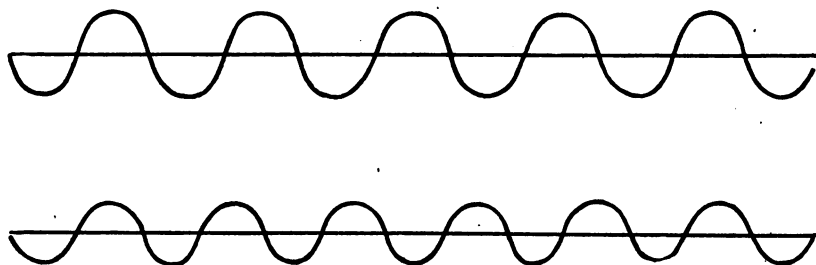


Figure 72 represents curves produced by a magneto-electric apparatus, used by Dr. Kellogg, of Battle Creek, Michigan, and shows great uniformity in the action of the machine.

FIG. 73

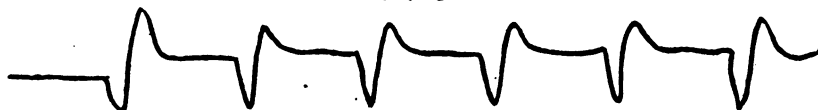


Figure 73 represents a curve from an ordinary Faradic coil, used for therapeutic purposes.

It thus appears that a properly constructed sinusoidal apparatus lends itself to perfect control and may be regulated simply by adjusting its speed, and all gradations of effect may be obtained from mild to strong tetanic muscular contractions.

As metabolism depends largely upon the vigorous actions of non-striated muscular tissue, it must be apparent that a painless but efficient method of stimulation, such as the sinusoidal current provides, must possess many advantages.

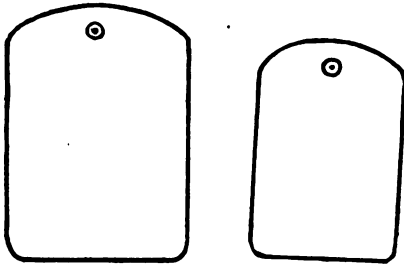
Dr. Kellogg found by experiment that the lifting power, as shown by a dynamometer, was greatly increased by the application of the sinusoidal current, and that in a similar manner the sense of fatigue, after

muscular exercise, was abolished. The results correspond with those obtained by Dr. G. V. Poore and Capriati, quoted above, in relation to the actions of the direct current.

General Electrization by the Electric Bath.—For this purpose the direct, coil, or sinusoidal current may be selected according to the indications. This method of applying general electric treatment has a great many advantages:

- (1.) Water, as a conducting medium, adapts itself completely to the surfaces of the body;
- (2.) By moistening the surfaces of the body it lowers resistance, and increases the comfort of administration;
- (3.) When suitably heated it protects against exposure and keeps the body comfortable; and
- (4.) It secures simultaneous application of the current where several areas require treatment.

FIG. 74



Method of Administering Bath Currents.—Two copper plates, provided with binding posts, are placed, one at the head and the other at the foot of a porcelain tub. The former may measure sixteen by twelve inches, the latter may be somewhat smaller. The feet may be allowed to touch the lower electrode, but the head and shoulders are prevented from touch-

ing the upper electrode by a rest made of wood or other suitable material.

Figure 75 represents an instrument manufactured by the Wappler Electric Controller Co., for the purpose of furnishing sinusoidal currents for therapeutic use. The current from a switch-board is passed through the in-

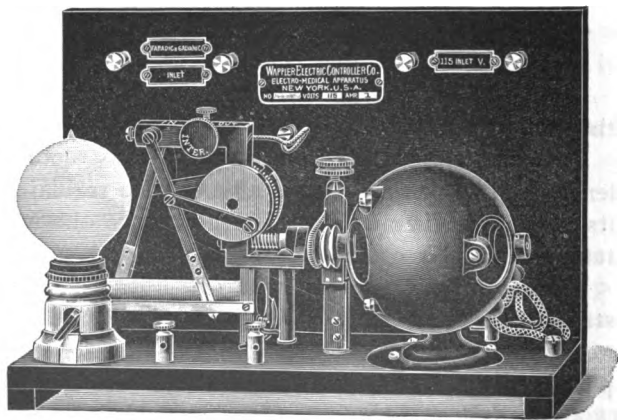


Fig. 76

strument and transformed into a sinusoidal current. The pole is automatically changed, and the frequency regulated according to the will of the operator. The objection to sinusoidal currents, obtained from an alternating dynamo, is the fact that the frequency of their polar changes, usually about sixty per second, is not subject to regulation. Sixty complete, or one hundred and twenty half cycles per second, is too rapid an alternation for many therapeutic purposes. For some purposes one cycle per second may be desirable, or a still lower alternation. Therefore an instrument which produces a true sinusoidal current, capable of perfect regulation as to frequency, has many advantages.

(To be continued)

OPERATIVE TECHNIQUE OF THE LEUCODESCENT THERAPEUTIC LAMP

BY I. AMSON ALLEN, M.D., WORCESTER, MASS.

I HAVE been using the leucodescent therapeutic lamps since August 22, 1905, and I bless the day that brought to me the acquaintance therewith. They are certainly a necessary equipment for every physician who is in general practice, and who has at heart the welfare of his patients.

There is hardly a week — there is certainly not a month — but that the lamp affords me surprises as regards its therapeutic value. These surprises come at unexpected moments and with doubtful cases. For example:

On January 1, 1908, a Yale freshman, who was at home on his vacation, came into my office suffering from acute yellow jaundice. I prescribed medicine for him and told him to come the next day. On the second day he appeared with some fever, skin much more yellow than the day before, conjunctivæ yellow, as well as eyeballs, languid, weak, anorexia, etc. He said his vacation ended on January 7, when he must return to college. I realized the necessity of hurrying the case and determined to use the lamp. He received daily treatments of twenty minutes each (except the first treatment, which was only ten minutes), to the body, front and back. The improvement was marked with the first treatment, and he was completely restored to health. He returned to college on January 7, taking his last treatment on the way to his train. He has remained in perfect health ever since.

The physician may rest assured that if he is not getting results from his use of the lamp, the fault lies with himself and not with the lamp. Its use requires thought and one's personal attention. I do not believe the use of the lamp should be delegated to assistants. There must be a man behind the gun, and that man must calculate his distance, his range, all existing air currents and ocean currents, figuratively speaking, and if his calculations are correct he should hit the circumscribed rectangular

space about the bullseye with a record of nearly one hundred per cent.

The use of the three and five hundred candle-power leucodescent therapeutic lamps produces certain well-defined and positive physiological changes in the tissues, and to the body as a whole. That these lamps are of value in the treatment of a large number of diseases, both acute and chronic, is surely proven by the experience of those of us who have used and are still using them.

The locality of the physician has nothing whatever to do with it. The lamp is just as valuable to physicians who live in Australia as to those who live in Massachusetts or California. And it stands to reason that the idiosyncrasies of patients may modify the method, the style, and the time and length of treatments. Let thought and judgment rule all actions and decisions as to the matter of treatments.

Many physicians have written me before purchasing the lamp, asking:

- (a). What are the indications for the use of the lamp?
- (b). The physiological changes produced by the lamp?
- (c). Best or proper methods of use?
- (d). Contraindications, if any?
- (a). *What are the indications for the use of the lamp?*

- 1. Very many acute conditions.
- 2. Nearly all chronic diseases, whether external or internal; superficial or deep seated. And it makes no difference absolutely how deep seated the disease; if anything, the more deep seated the disease, the more call for and need of the lamp.

I am quite sure that we fail to realize, very often, what potentiality is in our hands in the treatment of patients on the surface of the body. Surely, individual members of the medical profession and the profession as a whole have awakened to some realization of the successful management of disease by superficial treatments as portrayed to us by the different modalities which have come into our possession during the past few years. Among these are the X-ray, Finsen ray, vibrator, high-frequency currents, and last, but by no means least, the leucodescent therapeutic lamp.

- 3. Such diseases as neurasthenia, acute melancholia, irritable spine (as diagnosed by the use of the vibrator), chronic bladder and kidney diseases, liver, stomach, intestinal, uterine, ovarian and all pelvic diseases, appendicitis (acute and chronic), neuralgia, neuritis, sciatica, lumbago, pulmonary tuberculosis, bronchitis, asthma, etc., etc.; all chronic skin diseases; all swellings such as abscess, goiter, etc.

- (b). *What are the physiological changes produced by the lamp?*

- 1. Improved circulation in the diseased parts.
- 2. Improved metabolism in the diseased parts.
- 3. Greater absorptive power of the lymphatics of the parts.
- 4. Destruction of pathogenic germs.

5. Improvement of opsonic index of the whole system, increasing the vitality of the red and white blood corpuscles. The tonic effect of the lamp is certain, and is often noted by patients during the first treatment.

(c). *What is the best method of treatment?*

Always with caution. Use all necessary psychological influences upon the patient by declaring that there is no possible danger, and that no harm can come to them by the use of the lamp. If they experience the sensation of discomfort from the heat the operator will stop it at once by fanning, by passing his hand over the part being treated, or by the application of compressed air. Sometimes marked effects are obtained by applying the lamp at low range, with quick passage of the lamp cross-wise or lengthwise of the body. At other times and with the same patient, the best healing effects will be secured by the slow movement of the lamp at long range of eighteen, twenty-four, thirty, or thirty-six inches from the body.

In case of abscess the lamp should be applied to the spot steadily for several minutes, cooling the part by the passage of the hand over it; by a steady current of air from a fan operated by the hand or an electric fan or a stream of compressed air from a tank. Hold the lamp as near the patient as he can endure it when use is made of the above appliances.

Never attempt to apply the lamp through any clothing whatever, and never set a lamp over a patient, and go away without an attendant!

(d). *What are the contraindications?*

The only one I have experienced is that of exhaustion, either during or following the treatment. The sensation of exhaustion is that which one experiences when walking under a hot sun. There are certain cases of neurasthenia or incipient melancholia which will sometimes experience that sensation of exhaustion. And I know of no way of discovering them except by trial.

I have been asked whether or not I have noticed any difference in giving systemic treatments when the lamp was applied, first to the front and then to the back, or vice versa. Yes, I always apply to the spine first, then to the front of the body, then return to the spine again, all in the same treatment.

I have been asked what effects, produced by the lamp, I have found that could be depended upon with absolute certainty.

Answer: Allaying of inflammation, destruction of pathogenic germs, and tonic effect upon the whole system.

I have been asked as to duration of treatments and if they should be varied in different conditions.

Answer: The first treatment I give any patient is seldom over five minutes, and never over ten. Then gradually increase each treatment up to twenty minutes, which I never exceed. I reached that conclusion because I found that very strong men, if treated too long the first time,

would sometimes experience the sensation of exhaustion within the following twenty-four hours. I have treated patients only one minute by my watch, stopping just as soon as the patient began to feel tired, and very gradually increasing the length of treatments in succeeding seances.

And *always* let that be your rule as to length of treatments, no matter if it is one, two, three, four, five, or ten minutes. For patients may become easily frightened after once experiencing the sensation of exhaustion.

A second rule that is safe to observe is, never treat a patient who is frightened before you begin. I will let such go out of my office before I will attempt treatment.

The length and method of application should be varied in different conditions and with different patients. Never work by routine with the lamp, but study the patient as an individual case, and particularly the case in hand.

I am asked how frequently should treatments be given in the different conditions.

Almost all diseases that call for treatment at all should be treated daily at first, and until marked improvement is discerned. In very acute conditions I have given treatments three and four times daily. Also in some chronic conditions, such as chronic appendicitis with the history of pain gradually increasing during the previous two or three weeks, which I have treated twice daily, twenty minutes each treatment, for two or three weeks, with marked improvement up to a complete cure.

I am asked how soon do I expect to see improvement.

Answer: Very soon; most frequently the very first treatment. If no improvement in ten successive treatments, then I advise no more, but look for some other modality, or search for a more closely indicated remedy, or both.

I am also asked what are the total number of treatments that, in my experience, have been required in the different conditions, grouping these conditions as to class.

Answer: Acute conditions require from five to twenty treatments; chronic conditions from twenty to fifty in the majority of cases cured. I did, however, cure a case of multiple fistulæ from the bladder, which I treated one hundred and sixty-two times, and he is well to-day. I should say that the matter is a very indefinite one, and each case should determine its own needs in that respect. Treat them until you and the patient are satisfied that they will stay cured.

I had great hopes, when beginning treatments with the lamp, that I was going to cure cancer. I am now satisfied that when a cancer is constitutional, that is, when the surrounding lymphatics have become affected, it is absolutely incurable by the lamp. Before it has become constitutional, and is merely a local affair (as almost all cancers are at the start), a certain per cent are curable. That is my belief now, and that is the principle under which I am working.

DEPARTMENT OF DIETETICS

THE DIETETICS OF SUGAR

By J. A. DENKINGER, M.D., BOSTON, MASS.

Continued from page 56.

INDIVIDUAL TOLERATION OF DIFFERENT FORMS OF CARBOHYDRATES IN DIABETES

Authorities exhibit considerable difference of opinion on this subject, and for good reasons. Carbohydrate assimilating capacity varies not only for different substances in different individuals, so that each patient becomes a law unto himself, but the same individual does not always react alike to the same carbohydrate. It is not at all infrequent that a certain carbohydrate will be tolerated by a patient one day and give trouble the next, only to be tolerated again after a temporary change to some other carbohydrate. Some patients can tolerate much more carbohydrates when exercising, with others such is not the case. Some can take more carbohydrates in the middle of the day than in the morning, with others it is a matter of indifference. Sometimes carbohydrates are better tolerated in small and frequent amounts than in larger quantities at longer intervals and vice versa. Carbohydrate tolerance also depends largely on the amount and utilization of other food-stuffs, especially of proteids.

It is only by trying the different forms of carbohydrates that we can determine which one will be best tolerated by the individual patient.

Generally speaking, starches are better tolerated than sugar.* This is probably due to the fact that they are more slowly hydrolyzed into sugar. With most persons, the starch contained in green vegetables seems to be the most readily burned variety of carbohydrates.

Von Noorden found that the starch of oats is better borne than that of rye or wheat.

Labbé, who investigated the tolerance of diabetics for the various carbohydrate foods, found that they are tolerated by diabetics in the following order: potatoes, oatmeal, maccaroni, rice, beans, peas, milk, bread, and, lastly, sugar.

SPECIAL CARBOHYDRATES IN THE DIETETIC TREATMENT OF DIABETES

Potatoes. Mossé was the first to call attention to the fact that dia-

*Schmintz claims that sugar is ten times more injurious to diabetics than starch.

betics have a surprising tolerance for potatoes, and that they are capable of being largely substituted for bread, and that glycosuria may be favorably influenced by their use. He reported material diminution of glycosuria and polyuria under their use, as well as diminution of thirst and an increase of strength. He gives his patients from two to three pounds daily. He attributes the good results claimed for potatoes to their large content of alkaline salts, especially the potassium salts, to retain which, he recommends that potatoes be baked, roasted, or steamed, with their skins on.

Offer confirmed Mossé's observations.

Von Noorden, who tested potatoes carefully, found them "better tolerated than one would suppose," but reports that comparative tests showed better results for oats than potatoes, although some cases did better on potatoes. Osborne found potatoes frequently more perfectly metabolized by diabetics than bread.

One reason for the greater tolerance of potatoes over bread is, that bulk for bulk, they contain only about one third as much starch as bread, and can, therefore, be given in much greater quantity. Potatoes also contain less albumin than bread, for which reason Joslin and Goodall refer to the "potato cure" as really a low albumin cure. Potatoes possess also the additional advantages of being a very popular article of diet, of being capable of preparation in various ways, and of absorbing a large amount of fat, especially in the form of fried potatoes and mashed potatoes.

Thompson speaks very highly of his experience with Saratoga Chips. Dujardin-Beaumetz speaks very highly of the "potato cure." Ernhorn on the other hand, found potatoes of little value, and in the last edition of Naunyn's work on diabetes, that authority does not speak at all enthusiastically of the "potato cure." For all that, the fact remains, that many patients possess more tolerance for potato starch than wheat starch, and potatoes can, at least, replace a portion of the bread in the diabetic dietary. It goes without saying that before resorting to the "potato cure," the tolerance of the diabetic for potatoes should be tested the same as in the case of other carbohydrates, and the amount of potatoes allowed should be kept well within the limits of his tolerance for carbohydrates.

Rice. Von Dühring claims equally good results with rice flour, and a number of observers have found that well-cooked rice is indeed remarkably well tolerated.

Oatmeal. What is known as the "oatmeal cure" originated with Von Noorden, who found that many diabetics who continued to eliminate sugar on a strict diabetic diet were very much benefited by a diet of large quantities of oatmeal. It proved specially successful in the more severe forms of diabetes (with emaciation, loss of strength, and polyuria), and in causing the disappearance of diacetic acid and in warding off threatened coma. The "oatmeal cure" is, moreover, followed by an increased tol-

erance for carbohydrates. It has been particularly successful in the diabetes of children. In mild cases, oatmeal has been found not only useless, but often harmful. The best results with oatmeal are obtained when no other carbohydrates and no meats are taken, and when oatmeal forms the principal food taken.

The "oatmeal cure" consists of two hundred and fifty grams of oatmeal, two hundred and fifty grams of butter, and the whites of from six to ten eggs, and is prepared as follows: Oatmeal flakes previously salted are thoroughly boiled in water for several hours, after which, while still boiling, the butter is carefully stirred in, followed by the addition of the beaten white of eggs. The amount stated constitutes the diet for twenty-four hours, and should be divided into six or eight meals, and served every two hours. It may be taken either as a thin gruel or soup, or it may be fried or simply browned.

REPORTS ON THE "OATMEAL CURE"

Friedenwald and Ruhrah found oatmeal most useful in the form of diabetes exhibiting diacetic acid in the urine. In diabetic coma they found it superior to the milk cure. They consider the beneficial effects of oatmeal due to its salts.

Herrick, who tested Von Noorden's "oatmeal cure," in the main confirms the latter's claims. He is satisfied that in some cases of diabetes, on the oatmeal diet, one cannot indiscriminately and abruptly substitute another carbohydrate, such as cane sugar or wheat starch for oatmeal, without a prompt rise in glycosuria. Like Von Noorden, he found it not suited to the milder cases, but of the greatest value in cases of the more severe types, "where on the ordinary diabetic diet the case seems to be going wrong, acetone bodies are appearing in the urine, and the patient is gradually losing strength and weight." Herrick also reports favorable results in cases of moderate severity and in cases of juvenile diabetes, and in establishing tolerance for carbohydrates.

Sigel (Ewald's clinic) regards the oatmeal diet as a valuable therapeutic agent, and so does Langstein, Mohr, Hirschberg, and Von West-enrijk, who refutes the charge of certain critics that the oatmeal cure is simply a low albumin "cure."

On the other hand, Magnus-Levy, Archipow, Naunyn, and Lipetz are not favorably impressed with the oatmeal "cure," the latter reporting that but little if any of the carbohydrate material ingested in the form of oatmeal was absorbed, most of it having undergone fermentation. As to the use of oatmeal in acetonuria, Stern believes, that oatmeal is no better tolerated by diabetics with acetonuria than other carbohydrates, such as buckwheat or rice. He found the yolk of the hen's egg the only fatty

article of food well adapted to the needs of the diabetic organism during acidosis. Stern's yolk "cure" consists in the ingestion of from 10-40 yolks a day (twenty-one yolks yield one thousand, thirty-two yolks one thousand five hundred calories.)

Herter has this to say regarding the oatmeal, potato, and rice cure: "Underlying all these 'cures' is the principle of limiting the carbohydrates to one kind, and greatly diminishing the amount of meat." Summing up what has been said pro and con oatmeal, by various observers, oatmeal is well worthy of trial, especially in those intractable forms of diabetes, which respond so poorly to the old starch and sugar-free diet.

TOLERATION OF THE DIFFERENT FORMS OF SUGAR IN DIABETES

As with starches, so with sugars, all are not equally well tolerated, the individual factor having much to do with the question of tolerance. Strauss gives the following list of sugars arranged according to their degree of tolerance in diabetes: Levulose, lactose, maltose, cane sugar, glucose, galactose.

Levulose. Most authorities agree that levulose is upon the whole better utilized by diabetics than other sugars, at least for a time. Amongst the authorities who have advocated levulose are Külz, Richter, Ortnier, Bouchardat, Williamson, Hutchison, Benedict, Wilcox, Herter, Cohen, Tyson, Joslin, and with certain qualifications, Von Noorden. Külz was the first to show that diabetic patients, as a rule, deal with levulose, and its polysaccharide inulin better than they do with starch, lactose, cane sugar, and dextrose. For a time, levulose had the reputation of being a wholly harmless carbohydrate for diabetics, but more recent experiments failed to altogether corroborate the favorable opinion at first entertained of levulose. Von Noorden advises great caution in the use of levulose. He states that when levulose is given continually, it is found in about three to five days, that the sugar excreted is no less than when other carbohydrates are given to the same patient. This has also been the experience of Sosin, Naunyn, Boland, and Palma and Bouchardat. Naunyn found that levulose becomes after prolonged use almost as injurious as dextrose, and Falta and Gigon (the laws of sugar elimination) were unable to discover any difference between dextrose and levulose in point of tolerance. The sugar excreted after the use of levulose by the diabetic is for the most part glucose. If levulose appears along with glucose, the prognosis is considered specially grave, as it indicates the entire breakdown of carbohydrate assimilation. Mandel and Lusk found that the increase of sugar in the urine of their diabetic man, after giving one hundred grams of levulose, was eighty per cent of the sugar ingested. One of the objections to the use of levulose is its high price (\$1.80 per

pound). Fruits rich in levulose have often been found more useful in diabetes than pure levulose.

Lactose. Next to levulose, lactose seems to be the best tolerated sugar, and is favored (next to levulose) by Tyson, Herter, Williamson, Cohen, and Wilcox. Von Pettiti found lactose better utilized than any other sugar, and so did Willoughby. Von Noorden found the toleration limit the same for milk sugar and starch, some patients tolerating amyllum, others lactose better. Most observers agree that diabetics do much better on lactose than other sugars, levulose excepted. Naunyn, however, considers lactose little less injurious than dextrose and canesugar, and Von Mering reports that when given for a prolonged period, it has a very deleterious action by augmenting the excretion of sugar. The sugar which appears in the urine after administration of lactose is dextrose. If lactose is taken in large quantities a small portion of it passes into the urine unchanged. In our consideration of lactose, we must not forget milk.

Milk. The milk "cure" for diabetes was first suggested by Rollo, Winternitz, Strasser, and Kolisch.

To be continued.

FOUR ESSENTIALS IN FEEDING TYPHOID*

From the dietetic standpoint it should be remembered:

1. That typhoid fever lasts three to five weeks or more, so that nutrition is a matter of life or death.
2. That, during the second week, there is a considerable degree of inflammation of the small — occasionally also the large — intestine, culminating in actual ulceration during the third week, so that perforation, hemorrhage, and ultimate cicatrization are possibilities.
3. That, aside from the local lesions, there is a systemic infection, increasing catabolic waste, producing general intoxication and depressing the digestive secretions and the functions of the body generally.
4. That there is also an intestinal intoxication, due not so much to the typhoid bacillus as to the colon bacillus and other indigenous germs whose virulence is heightened, partly by the increased temperature, and that this intestinal intoxication is not only serious in and of itself, but by lessening the resistance to the specific bacilli; and that this intestinal intoxication is largely controllable.

* "Golden Rules of Dietetics," Benedict.

THE MEDICAL ROUND TABLE

DRUG THERAPY

DOUBLE SULPHIDE AND ECHINACEA

EDITOR JOURNAL OF THERAPEUTICS AND DIETETICS:

On page 58, November, 1908, JOURNAL OF THERAPEUTICS AND DIETETICS, I notice a request for reports on the use of double sulphide as made by Dr. Burgess. I have used this remedy alone, and in combination with bull nettle in about half a dozen cases of typhoid fever. In some cases it seemed to be of some value, while in others I could not tell whether it did any good or not. It did not abort or even cut short, that I could tell, any case that I used it in. I used this remedy in four cases as a preventive of typhoid fever; two had the fever in an averaged degree, one walking typhoid and one did not take it at all. I used the double sulphide in combination with bull nettle in one case to prevent mumps, but it failed, although the case was mild and of short duration. I do not know, but believe the remedy was of benefit, and am of the opinion that the bull nettle did as much good as the double sulphide.

Dr. Burgess claims that double sulphide will abort typhoid fever, and Dr. W. F. Waugh claims that calcium sulphide will prevent mumps. These remedies certainly deserve investigation, and I hope the readers will report their experience with them so we can determine which one is best.

The preparation of the double sulphide and bull nettle that I have used were obtained from Dr. Burgess, so I suppose they were up to standard. Double sulphide is not a secret or proprietary remedy, it can be made by any one that wishes to do so. Bull nettle grows in most all, or all Southern states. I am rather inclined to think that calcium sulphide will prove to be of more value than double sulphide, and this is a question that should be settled by clinical observation and not by theory.

In regard to the request on echinacea, page 59, November, 1908, JOURNAL OF THERAPEUTICS AND DIETETICS, will say that in my opinion there is no drug used by eclectics in general that is more overestimated than echinacea at the present time. I may surprise the readers of this JOURNAL when I say that I have used specific echinacea and echifolta, made by Lloyd Bros., and the tablets made by the Abbott Alkaloidal Co., and have never used the remedy in any condition but what I could get better results from other remedies.

As a systemic antiseptic in typhoid fever, echinacea will not begin to compare with turpentine in any case, and echinacea is not half as good as zinc phenosulphonate as an intestinal antiseptic in typhoid fever, or in any other condition where an intestinal antiseptic is indicated. In the puerperal state, where child-bed fever is threatened or feared, turpentine will prove to be a much better systemic antiseptic than echinacea.

In uremic conditions sodium benzoate diaphoretic and hot packs is much superior to echinacea. Echinacea has been recommended in various skin diseases, but there are few if any skin diseases where it will give as good results as *alnus serrulata* or *berberis aquifolium* or the two combined, or as good results as mercury beniodide. Of course, some will not like it because I have mentioned a preparation of mercury, but no one should allow prejudice to run away with their judgment. I am after the remedy that will prove by actual clinical results (not theoretical) to be the best.

In dysentery, acute or chronic, where an antiseptic and healing injection is needed, an infusion of *plantago major* is far superior to echinacea. A local application of *calendula* is far superior to echinacea in all pus-discharging places. As a local application echinacea and its preparations have in my hands proved to be almost worthless. I would be pleased to see reports on echinacea not theoretical, but what has been observed in actual practice. I feel sure that many have learned that this remedy is much overestimated.

J. A. BURNETT,
Little Rock, Ark.

We are glad to report both sides of any question, as that is the only way in which we can arrive at right conclusions. We would ask our readers to discuss these statements of Dr. Burnett's.

PHYSICAL THERAPY

REMOVAL OF SUPERFLUOUS HAIR

Query: Will you explain the proper method of removing superfluous hair?

Answer: Any form of battery may be employed; the Grenet, gravity, Leclanche, or dry cell (First Steps in Medical Electricity, Chapter VI), if the commercial mains are not available. For this purpose, if a Grenet battery is employed, from two to ten cells may be used; the larger number being rarely necessary. In any event an accurate milliamperemeter should always be introduced into the circuit. The current strength may run from one to six milliamperes, the higher strength being not usually necessary.

The positive pole should be attached to an electrode of cotton, spongopiline, or other material capable of absorbing fluid (Chapter VIII, *ibid*). It should be as large as the hand, and preferably saturated with an aqueous solution of common salt or sodium bicarbonate. Upon this the patient may place the hand during the process of epilation. The other pole should be attached to a needle holder containing a Hayes bulbous needle. The patient should recline on a table, and a good light, furnished by a forty candlepower electric lamp supported by an adjustable bracket, employed to give thorough illumination to the area which is to be operated upon. A magnifying glass is frequently useful. This may be supported upon the forehead or attached to the needle holder. Finally, an epilation forceps is needed.

Hairs are rooted at different distances below the surface, varying from one thirty-second to one fourth of an inch. It is interesting to study for a moment the structure of the investing membranes of the hair. These consist of two coats, the outer or dermic coat, and the inner or epidermic coat. The former is made up essentially of the two layers of the corium, namely, the papillary and reticulated layers. We are particularly concerned, however, with the inner or epidermic layer, because this frequently adheres to the hair when it is removed, and presents a white, silvery appearance. This consists of two *strata*, called respectively the outer and the inner root sheath. The outer root sheath corresponds with the Malpighian layer of the epidermis. The inner root sheath consists of the delicate cuticle next to the hair shaft, then of one or more layers, called Huxley's layer, and finally of another layer of horny cells, called Henley's layer.

The art of removing hair by electrolysis cannot be acquired by mere description of the technique employed, though this may give valuable assistance. How far to introduce the needle, how long to let it remain, how much frothing should be permitted, and how not to leave a scar are some of the problems which experience only can solve completely. Some operators can remove from sixty to one hundred hairs in an hour, though many patients cannot endure so long a treatment.

The question of reducing pain is an important one. For this many methods have been suggested. One operator uses a five per cent solution of carbolic acid, another removes four hairs at the angles of a quadrangle, and then covers the area with a ten per cent solution of cocaine, employing cataphoresis to drive in the anesthetic; another uses a four per cent solution of cocaine in guaiacol with cataphoresis; still others work without local anesthesia, directing the patient to remove the hand from the negative electrode when the needle is removed, and not replacing it until the needle is again introduced.

Each operator acquires his own technique after adopting and rejecting various procedures that have been presented to his attention. The subject is large and can be treated here only in a very sketchy manner.

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EDITORIALS

SUGGESTION AS A THERAPEUTIC MEASURE

In a communication recently received from a physician of marked individuality of character, an enthusiastic optimist in therapeutics, and a man of remarkable success in the practise of his profession under unusual difficulties — whose recently issued booklet on "Specific Medication" is noticed elsewhere in our columns — he made the incidental remark that a very important element in his clinical success is due to suggestion, the very quintessence of his medication being suggestive.

This chance remark of my valued correspondent set me to thinking. The much talked of Emmanuel movement, which may be termed the fad of the day, owes whatever is of value in it to the principle of suggestion. Christian Science is suggestion plus a world of folly. All faith cures are based on suggestion. Hypnotism is the quintessence of suggestion. All these things are the ancestors, collaterals, or descendants of suggestion. And as for suggestion itself, what is it, in its essence, but the old and well-understood principle of *the influence of the mind upon the body*?

Looked at in this light, who can doubt or who can question the mighty

power of suggestion as a therapeutic measure? Who does not know that the greatest incentive to success is the vision of success which is formed in the mind of him who strives? What physician has failed to note that the hope of recovery is an absolute essential to actual recovery? So much so that a wise physician has declared that the only necessarily fatal symptom in any disease is the loss of hope and courage? Or who can question that a strong, optimistic nature, especially if contained in a vigorous and healthy body, sweeps along with it its patients on the road to health? What tyro in science has not learned that the heart beats more forcefully, the blood circulates more freely, the secretions are poured out more abundantly, the food digested more perfectly, the brain acts with more certitude and promptness, the nerve cells send out their messages to the distant parts of the body with added force and definiteness, and the nerves themselves deliver these messages with more facility and precision — and in short, that all the bodily and mental functions are performed with greater ease and celerity when the mind is under the influence of faith, hope, and courage, than when it is held down by the demons of doubt, fear, and discouragement? Who has not seen the tired and worn-out soldier, half fainting and wholly exhausted, scarce able to keep himself from falling by the roadside, start up with new vigor at the welcome sound of the fife and drum, and press on with no thought of fatigue, until the goal is reached?

What physician has not seen the recovery of his patients hastened by hope and good cheer, or retarded by fear and discouragement? More, who has not realized the same thing to take place in his own experience? I well remember how, in my own case, a few years ago, some fearful, misanthropic, despondent thoughts and feelings coming into my head in the morning would cause me to struggle and pant all day for breath, and this in turn filled me with a terrible fear that the day of compensatory cardiac hypertrophy had passed for me, and that I was doomed henceforth to fight for breath. But fortunately there was at the Hub a man in whose good judgment and skill I had entire confidence. I went one day to consult him as a patient. He went over me carefully, and showed me that there was no foundation for my fears, and nothing but mental impressions (i. e., suggestion) the matter with me. I came away filled with his contra-suggestions, and nothing of that kind has troubled me since.

Did you ever know a successful physician — I mean a real doctor, one of the kind who does the work on the fighting line — who was not a cheerful optimist? Who wants a doctor that is sick or in mourning, or who always expects his patients to die, no matter what little thing attacks them? I have no doubt that my optimistic correspondent, by his strong personality and abounding vitality, coupled with his confident assurance, has brought back more than a few poor sufferers from the jaws of death,

who would have gone down the dark valley and faded out of life under the care of a weakling or a pessimist.

The longer one lives, and the longer he practises medicine, especially if he is a successful practitioner, the more he becomes alive to the importance of this subject. The sick, whether they be men or women, reach out their hands to the doctor, as to their deliverer. They want from him hope and confidence and cheer, almost as much as they want relief from their actual physical sufferings. To meet in any degree their proper expectations he must be able to handle with skill, not only the grosser part of *materia medica*, which consists of drugs, but also the more refined and therefore more difficult *materia medica* of the mind. He must be a bearer of burdens, a carrier of responsibilities, a giver of courage, a cheerful comrade, a father confessor, a sympathetic friend — and withal, a man who it is known will fight the grim monster to the last ditch, and never give up the fight while life is left.

Then indeed he will see the poor sufferer's eyes brighten at his entrance, will realize the relief of the friends of the patient, as they cast the burdens of the case upon the doctor, will know what it is to see the patient begin to improve before the doctor has left the house, and while his prescription is still on the mantel waiting for the messenger to go with it to the druggist — yet confident that the wished-for relief is coming, and hence receiving it in advance of the slow action of drugs, through the wondrous, subtle, vitalizing influence of suggestion.

J. M. F.

THE AMERICAN SOCIETY FOR THE STUDY OF ALCOHOL AND OTHER NARCOTICS

will hold a meeting at Washington, D. C., March 17, 18, and 19, in the afternoons and evenings, for the presentation and discussions of papers on the various phases of the alcoholic problem.

The present meeting is a response to an invitation from leading men at the capitol, to present to the profession and public, some scientific and authoritative conclusions concerning the alcoholic problem, based on facts of laboratory and clinical research, and entirely from a scientific point of view.

Over thirty papers on different phases of the subject have been promised, and many of them from the great leaders of the medical profession. Physicians and all interested are very cordially invited to be present. For programs and particulars address Dr. T. D. Crothers, Secretary, Hartford, Conn.

DEPARTMENT OF THERAPEUTICS

GRINDELIA ROBUSTA

BY A. WALDO FORBUSH, M.D., SOMERVILLE, MASS.

Grindelia Robusta.—Synonyms; hardy grindelia, gum plant, wild sunflower.

The drug is a native of California and the western coast of the United States. The botanical description is given by the leading botanists.

This plant was brought to the notice of the medical profession by Dr. C. A. Canfield, in a paper published in the Pacific Medical and Surgical Journal, in 1870. Mr. J. G. Steele, in a paper read before the American Pharmaceutical Association, in 1875, called special attention to the plant. It was Dr. Bundy's pen and influence, from 1878-1880, which created the most extended interest in this drug.

The plant yields a large amount of a balsamic oleo-resin with an odor resembling that of summer savory. This resin is slowly soluble in water, but freely soluble in ether and alcohol.

The plant contains medicinal properties, however, which alcohol does not dissolve, but an aqueous alkaline solution will extract the larger portion of these remaining characteristic principles of the plant.

The therapy properties undoubtedly reside in the oleo-resin principle; also a narcotic principle in combination.

Be sure of your preparation, for it is a fact that there is often a mixture of other species of the grindelia family that have quite different therapy indications.

The physiological influence of the drug is exhibited on the heart; at first by a quickened pulse, subsequently by retarding it. It first elevates the blood pressure, but subsequently its action is retarding.

This drug in toxic doses — through the pneumogastric nerve — paralyzes the muscles of respiration, and gives rise to the symptoms that have led to its successful use in asthma and some forms of bronchitis.

The chief indication for its use in all respiratory troubles is that the patient cannot breathe when lying down, stops breathing when falling asleep, and wakes with a start and a gasp for breath.

The clinical observations of *grindelia robusta* are grouped about asthma and its allied conditions, in labored respiration, with dusky flushings of the face. I have seen it relieve Cheyne-Stokes respiration in a very short time.

In spasmodic asthma, pure and simple, it is of much benefit. There may be a hereditary tendency in a very few cases, but to my mind, the larger majority thus credited are due to neglect of catarrhal affections of the upper air passages in early life, producing pathologic hypertrophies of the turbinates, etc. Cases developing later in life are due, in a large measure, to imperfect metabolism, etc., being caused by faulty habits of life and the law of insufficient use of the lungs.

These conditions tend to bring about a condition of pulmonary emphysema and imperfect oxygenation, that results in an autointoxication, and reveals itself in the asthma or asthmatic breathing.

In those affections of the air passages associated with asthma spasmodica, more frequent at night or on slight exertion, or with those common colds which take the form of asthma or dyspnea that have a recurrence of symptoms as a condition, *grindelia robusta* will be found of extra value. The more the patient seems on the point of suffocating, the more painful and distressing the restlessness, the more wheezing and louder the respiration, the more appropriate will be found the *grindelia robusta*. After its use the recurrence of symptoms will assume a much milder form and be less frequent. Rose cold, hay fever, and autumnal catarrhal wrongs with these symptoms will also be benefited by the use of this drug.

The remedy may be given in full and frequent doses; the effects are soon evident. It relieves the effort of breathing and produces expectoration. By continued use the entire train of symptoms slowly abate and the recurrence of paroxysms are more mild and recur less frequently.

The report of failures to relieve conditions given by a few practitioners leads me to believe that the non-success in overcoming pathologic wrongs is due in a large measure to the attempted treatment of these conditions without regard to specific or definite drug action.

Therapeutics should not be based upon noseology. When we study the literature of the day our consideration of the diseased man seems to be a complicated affair, but, after all, practical medicine resolves itself into the consideration of man in health and disease. If we do not understand the former we cannot treat the latter with any degree of success. Scientific medicine can only be based upon physiology.

In the earlier days the homeopathic rule of excess, defect, and perversion was applied; if this was more generally made a rule to-day, it would be of much assistance in our management of health deviation. The attempt to give simply a collection of symptoms some general name and prescribe a set formula for the same is not good practice, in the interest of the sick man.

It is not necessary — although many practitioners think it is — to change climate in order to cure or relieve asthmatic conditions. These conditions can be cared for at home. The treatment should consist of a

proper attention to the upper air passages — correcting obstructions if possible — and other sources of irritation of the nervous system; but above all regulate the intake of food and stimulate the elimination of waste products so that a proper metabolic balance can be maintained. A most careful study of each case is necessary, and no drugs to be administered without their strict indications being present. *Grindelia robusta* is more permanent in its influence upon chronic asthmatic breathing than any of our other agents.

It may be combined with other agents as indicated, for instance, quebracho, lobelia, stramonium, drosera, ipecac, iodide kali, etc.

Grindelia robusta among the people of the western coast has long enjoyed an enviable reputation in the domestic treatment of bronchial affections of an intractable character. In affections of the air passages, with the explosive expression as a symptom, attended by difficulty of breathing, and a cough that is dry and expectoration slight, or absent, with usually audible coarse rales, the *grindelia* can be particularly depended upon for results.

Bronchorrhea, with tough, whitish muco expectoration and difficult to detach, will be greatly helped by the drug under consideration.

Grindelia robusta will relieve the irregular heart action often accompanying chronic croup and affections associated with pulmonary wrongs. Heart and respiration alike are weak. This remedy will improve the strength and general character of both.

It has proved beneficial in shortness of breath attendant upon valvular disease, and in cardiac hypertrophy. The patient wakes suddenly with a sensation as if the respiration had ceased.

Grindelia robusta will relieve many times the nausea and retching of gastric ulcer, and conserve, in a measure, the prostration of this miserable condition.

In pertussis, with profuse mucous secretion and an explosive character of the cough, this remedy should not be forgotten. In chronic cough, following pneumonia, the drug has been used with good results.

As an application to the skin, when poisoned by rhus tox, this remedy is most valuable. It acts promptly and satisfactorily. It is also a most excellent dressing for burns and scalds when these are of a superficial nature. It is curative also in the bite of insects, quickly antidoting the poison. In many itching conditions of the skin, *grindelia robusta* will be found of service as a local application.

Grindelia robusta is of value in certain conditions of the eye. In conjunctivitis and purulent ophthalmia it has been found serviceable. Particularly in iritis is its power evidenced. It should be used both locally and internally.

Further investigation will undoubtedly present other uses of this already valuable addition to our materia medica.

My observation of the drug characteristics has been based upon the most reliable tincture of Otis Clapp & Son, and Parke, Davis & Co.'s Fluid Extract.

Dose: Clapp's tincture: five to ten drops every hour during the paroxysms and at longer intervals between the attacks. Parke, Davis & Co.'s fluid extract: two to ten drops every one, two, or three hours. Continue the less frequent dosage between time of spasmodic attacks.

A STUDY OF THE TWELVE TISSUE REMEDIES

BY JOHN WILLIAM FYFE, M.D., SAUGATUCK, CONN.

XI. NATRUM SULPHURICUM — SODIUM SULPHATE

The sulphate of sodium (also known as Glauber's salt) in small doses of triturations has been extensively employed in many wrongs of life with satisfactory results. Its action in general is that of an energetic medicament in all gastric bilious conditions, accumulation of water in the areolar tissues, yellow watery secretions of the skin, or yellow scales forming an eruption of vesicles. It is also an excellent remedy in affections caused by excessive secretion of bile. Its most marked indication is a dirty greenish-gray or greenish-brown coating on the root of the tongue.

Natrum sulphuricum is a very efficient remedy in diseases caused by living in damp houses, or by exposure in long-continued damp weather. It is also employed with much advantage in asthma accompanied by cough and raising of a glairy expectoration, and associated with vomiting of a greenish substance after eating. In asthmatic breathing, caused by a bronchial catarrh, which is always worse in damp weather, the sulphate of sodium is used with benefit, and in catarrh of the mucous membranes in general, when characterized by a tendency to profuse secretion of greenish mucus, its action is unmistakably curative. In coughs, with thick, ropy, and yellowish-green expectoration, it exercises a decidedly corrective influence, and in diarrhea, especially when the stools are watery and greenish in appearance, it is beneficially employed.

"Natrum sulphuricum is one of the most frequently needed remedies in cases of chronic diarrhea when the leading characteristic is the loose morning stool. The flatulent symptoms are usually prominent features, but not necessarily present. Aggravation in damp weather is an important indication for this agent. It is also a valuable remedy in the greenish diarrhea of scarlatina, and in the chronic hereditary looseness of the bowels of old women much benefit is derived from its use." (Bell.)

In gastric derangements, with acidity and indigestion, especially when caused by the use of too much fat food, it acts beneficially by aiding in the process of emulsifying fat, and in gastric wrongs characterized by excess of bile, bitter taste in the mouth, vomiting of bitter fluid, greenish-gray or greenish-brown coating on the tongue, as well by diarrhea with dark green stools, headache, giddiness, lassitude, "heart burn," and copious formation of gas, it constitutes a frequently needed remedy. Sick headache, associated with diarrhea or vomiting of bile, comes within the curative range of the sulphate of sodium, and in colicky pain with giddiness, and a greenish-gray coated tongue, it is a remedy of usefulness. Attacks of headache during menstruation, which are frequently sudden in their onset, and characterized by determination of blood to the head, with heat on top of the head, a sensation of pressure in and through the head, despondency, vertigo, and dullness, are often promptly relieved by this drug. In occipital headache, with severe pain at the base of the brain, it is also a good remedy.

In intermittent fever, especially when characterized by a greenish or bronze-colored coating on the tongue, and a yellow discoloration of the conjunctivæ, sodium sulphate is employed with gratifying results, and in congestion of the liver, with soreness and sharp pain, it may well constitute a leading part of the treatment.

Natrum phosphoricum has been extensively employed in diabetes, and the results secured have often been superior to those obtained from many more frequently employed remedies. Its therapeutic action in this important condition should be more thoroughly investigated.

"While these two salts, natrum muriaticum and natrum sulphuricum, both act with water, they act in almost opposite directions. Both have the property of attracting water, but for an entirely different purpose. Natrum muriaticum attracts the water that is to be used *in* the system, and distributes it equally to the different parts of the system, while natrum sulphuricum attracts the water due to retrograde metamorphosis, and eliminates it *from* the system. It takes away the water from the worn-out leucocytes and thereby accomplishes their disintegration.

"This explains why this is one of our very best remedies in ague and other malarial diseases. While it will not act so rapidly in eliminating the water from the system as jaborandi and other powerful diaphoretics, and thus prevent a chill, it is a much better curative agent.

"In intermittent fever and malaria it is one of our best remedies. It is also a most excellent remedy in diabetes mellitus or insipidus. I have had better success with this remedy than any other I have used for these persistent conditions. In the case of a baby, the skin was dry and harsh, tongue coated, slightly yellow, temperature slightly elevated, and there was great thirst. The specific gravity of the urine was 1,045, and it was

heavily loaded with sugar. *Natrum sulphuricum* was given regularly in five-grain doses of the third trituration every four hours. Within a month the sugar was reduced one half and the specific gravity to 1,030. In another month the sugar was only one fourth of what it was at first, and the specific gravity was 1,020. In four months there was not a trace of sugar, and the urine showed a specific gravity of 1,015. The quantity of urine was then normal." (Kinnett.)

In rheumatic arthritis, especially when the pains shift from one joint to another, the sulphate of sodium is of considerable value, and in diseases of the bones, in which there is apparently pain in the bones, cracking of the joints, and stiffness, it is used with some benefit. It is also deemed a remedy of merit in erysipelas, especially in the smooth form with tingling or painful swelling of the skin, and in infiltrated inflammation of the skin its influence is corrective. In chronic gonorrhea, especially when there is a persistent yellowish or greenish discharge of thick consistency, *natrum sulph.* constitutes a medicament of curative power, and in leucorrhea, when the discharge is so acid and corrosive that it severely inflames the parts involved, its continued use will do much toward relieving the sufferings of the patient. It is also of value in urinary wrongs, in which there is a sandy deposit or brickdust-like substance in the urine, and it is often found useful in the treatment of children who cannot retain their urine throughout the night.

Indications.— Dirty greenish-gray or greenish-brown coating on the tongue; violent, pulsating headache, worse on top of the head; sick headache, with bilious diarrhea or vomiting of bile, and colicky pain; sallow or jaundiced appearance of the face; bitter taste and thick, tenacious slime in the mouth; pharyngeal catarrh, with profuse, thick, tenacious discharge; lithic deposits in the urine; brickdust-like coloring matter in the urine; excessive secretion of urine, especially if diabetic; pus and mucus in the urine; menses profuse, acrid and corrosive; cough, with thick, ropy, greenish, puslike expectoration; eruptions containing yellow, watery secretion; œdematous inflammations of the skin; jaundiced skin.

Dose.— Third trituration, 5 to 15 grains.

Usual prescription.— \mathcal{R} *Natrum Sul.*, 3x, gr. xx to \mathfrak{z} i, water, \mathfrak{z} iv. M. Sig. Dose, one teaspoonful every half hour to every two hours.

"An element of weakness in much of our resolving is, that we try to grasp too much of life at one time. We think of it as a whole instead of taking the days one by one. Life is a mosaic, and each tiny piece must be cut and set with skill."

CARBOLIC ACID ANTIDOTES RABIES

BY ROBERT GRAY, M.D., PICHUCALCO, CHIAPAS, MEXICO

Rabies is here epidemically, and I have had frequent opportunities of proving pure carbolic acid crystals, liquified by heat, applied directly to and injected around the lesions of animals bitten by rabid dogs, to be a perfect antidote to the poison, even when it was so intensely virulent that many animals thus bitten died of convulsions within an hour.

Not one of the animals that were thus treated within a very few minutes after they were bitten ever showed the slightest symptoms of the terrible malady, while others medicated half an hour or more later were in not measure favorably affected.

I have had no chance to test this antidote on a human being, nor to have it thus tried on any such unfortunates before it was too late; but I am convinced that it would render the poison harmless if immediately applied, as I have found it thus effective against the usually fatal bites of the most deadly reptile on the continent, the ananyaca.

I can imagine nothing less than the destruction of the virus by the local action of the acid ere the venom has had time to enter the circulation, as cases in which treatment is delayed are in no way favorably affected.

Pure carbolic acid serves many useful turns in my practice; stanches blood in fearful deep machete wounds, which heal without inflammation or pus, if subsequently treated with equal parts of carbolic acid crystals, chloral hydrate, and gum camphor, the chloral and camphor being triturated to a homogeneous liquid before the acid crystals are added. This combination is unapproached by any other combination, in all classes of ulcerations, old sores, and some skin diseases; while when mixed with pure olive oil in equal quantity, it cures colds in the head and catarrh in a way to put all other remedies to shame.

The pure acid injection is the infallible knifeless cure for hemorrhoids. It aborts boils and ulcers forming, and destroys incipient goitre and cancer. But it must not be used when diluted with any liquid to render it absorbable; and overflows touching healthy surfaces should be promptly washed with alcohol, which renders it harmless.

Noble souls, through dust and heat,
Rise from disaster and defeat
The stronger.
And conscious still of the divine
Within them lie on earth supine
No longer.

— *Longfellow*

PHYSICAL THERAPY

FIRST STEPS IN MEDICAL ELECTRICITY

BY HERBERT MCINTOSH, A.M., M.D., BOSTON, MASS.

Continued from page 117

CHAPTER X

ELECTRICAL TESTING. ELECTRICAL DIAGNOSIS

The testing of nerves and muscles has for its object the determination of the integrity and health of the ganglia from which motor and sensory nerves issue. The testing of muscles which derive their nerve supply from the spinal cord is, in effect, an effort to ascertain whether the reflex arc is complete, and, if impaired, to locate the area of damage. The same remark applies to the testing of the cranial nerves and muscles which they innervate.

In order, then, to determine how far nerves and muscles in any given case depart from their normal behavior under electrical testing, one must be familiar with their behavior in health. If the indifferent electrode be applied to any convenient part of the body, and the testing electrode, having a key for conveniently making and breaking the circuit, and a diameter of a quarter of an inch or more, is placed upon a superficial nerve, as, for instance, the ulnar nerve at the elbow, a muscular contraction becomes visible at the closure of the circuit, when the current has a strength of about one milliamperere, and the order in which the contractions appear as the strength of the current increases is as follows:

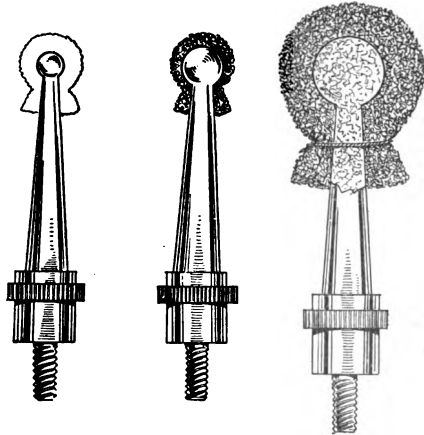


Fig 76

- (1.) Kathodal closing contraction (K C C).
- (2.) Anodal closing contraction (A C C).
- (3.) Anodal opening, contraction (A O C).
- (4.) Kathodal opening contraction (K O C).

These observations, however, will need constant correction, for it is observed, as we move the testing electrode to different parts of the body, that

(a.) Nerves that are superficially situated respond to a weaker current than those which are deeply located.

(b.) Nerves of infants require larger currents than those of adults.

(c.) Nerves that have been affected by injections of curare do not transmit stimuli to the muscles which they innervate, though both direct and induced currents applied directly to muscles whose nerves are thus treated excite contractions. Such contractions are, however, somewhat less brisk than when the nerves have been thus treated.

It is readily observed that the contractions produced in muscles are due to the making and breaking of the current, and that the muscles remain quiescent while the current is traversing them. This is practically true, though more sensitive methods of study show the presence of a "contraction remainder," due, possibly, to slower relaxation of the sarcoplasm or muscular sheath. With still stronger currents than are usually employed in electrical testing, there is noted an imperfect tetanus, called "duration tetanus."

Researches into the behavior of muscle under electrical stimulation have shown that the striated muscular fibers and the investing sarcoplasmic element have a different rate of response to electrical stimulation, the former contracting rapidly with a longer period of repose, the latter contracting more slowly with a shorter period of repose.

Intermittent Currents.— If now we use induced currents or interrupted direct currents, we shall note, where the interruptions exceed twenty per second, that the muscles pass into a state of tetanus. This follows from the fact that a muscular contraction requires about one tenth of a second for its completion. When, therefore, the stimuli occur oftener than ten times per second, the contractions tend to fuse and produce a tetanic effect. From what has been said in Chapter III, on the physics of induced currents, it may readily be inferred that, owing to the irregularity of the impulses proceeding from induced currents, it is better to employ an interrupted direct current in electrical testing.

According to Leduc, electrical testing is most successfully accomplished with currents in which the interruption occurs one hundred times per second and produce waves lasting one thousandth of a second, with a period of repose lasting nine thousandths of a second.

Non-striated Muscle.— When non-striated muscle is stimulated by the electric current, it responds, as it does to other stimuli, sluggishly. It may therefore be inferred that the current most suitable for stimulation of non-striped muscular fiber is a current of slow interruptions. Experiment has shown that probably the anode is the most suitable pole for stimulating such tissues.

Electric Currents as a Test for Death.— These afford a perfect demonstration of death, for when the muscles cease to contract under the influence

of induced currents, it may safely be inferred that life is extinct, or if they do contract, that death has been of very recent occurrence, and cadaveric rigidity has not yet set in. It has been shown that irritability to induced currents after death disappears first, and that responses to direct currents persist for some time longer. This fact might readily afford a clue as to the time at which a death has occurred.

Testing of Sensory Nerves.— Elsewhere in Chapter IX we have already analyzed the sensory effects produced by direct, induced, and sinusoidal currents, showing that in direct currents the sensation is due to chemical action, in induced currents largely to the abruptness of variation in potential as shown by tracings on a moving plate, and to varying relations between the number of interruptions per second, the degree of intensity of the current, and the ratio between the length of the curve and the period of repose; and that in sinusoidal currents the sensory effects are greatly reduced, owing to the gradual change of intensity as evidenced by the sine curve. It may be added that in proportion as the curve approaches a true sine curve, the sensory effects are reduced. When the electrodes are moistened by fluids containing salts, it is found in administering direct currents that with a solution of sodium chloride there is more irritation at the positive pole, owing to the fact that sodium ions are entering at that point on their passage to the negative pole, and with a solution of sodium bicarbonate the negative pole is the more irritating, because the CO_2 radicle, being electro negative, is liberated and carried through the skin on its way to the positive pole. Irritation will, of course, increase in proportion to the decrease in the size of the active electrode, as with a given current the density increases with the decrease in the area of the electrode.

The anæsthetic effects of coil currents have already been referred to in Chapter VI, on the physiology of coil currents.

When moving a small electrode over the surface of the body, it is found that whenever the electrode is over a sensory nerve trunk the sensation becomes more painful, and that the nerve trunk is more sensitive than its cutaneous ramifications. It is well to ascertain these points in testing, and avoid them if possible. One may determine them readily by exploring. Several may be found on the dorsum of the foot when testing for the reaction of the interossei.

Nerves of Special Sense.— If the optic nerve is stimulated by an electric current, a sensation of light is experienced; if the olfactory nerve be included in the circuit, an odor like phosphorus is noticed. If the nerves of taste are stimulated there originates a metallic taste, and a perception of sound follows stimulation of the auditory nerve. Each nerve of special sense, therefore, when stimulated, produces a perception peculiar to itself.

The Effects of Electrical Currents on the Brain.— When a continuous current is passed transversely through the brain a sensation of giddiness

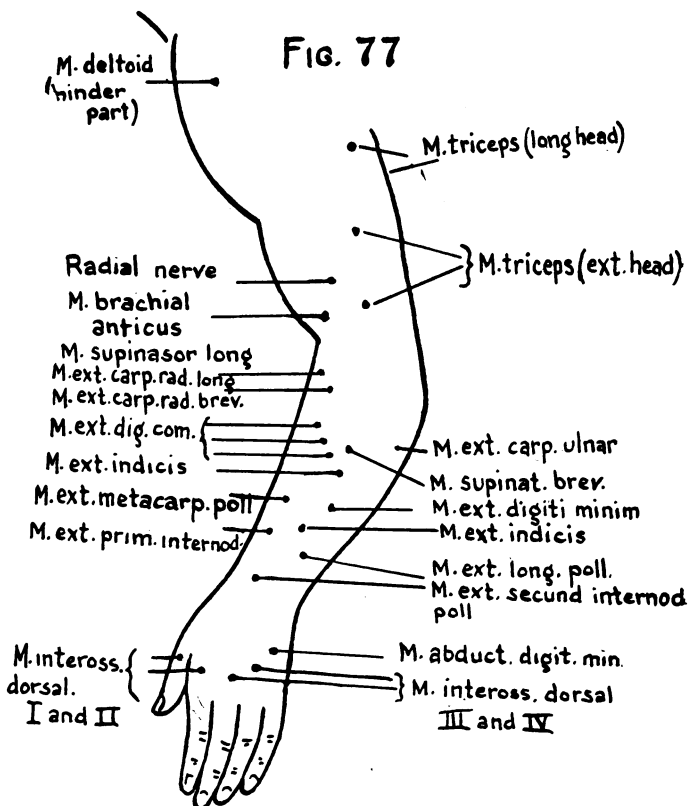
is produced, with a tendency to fall toward the side on which the positive pole is placed. Sometimes there is conjugate deviation of the eyes toward the kathodal side and lateral nystagmus.

The disturbance of equilibrium above noted may be due to an exalted irritability upon the side of the kathode, with diminished irritability upon the side of the anode, or it may be due to a specific action upon the semicircular canals. Induced currents produce no such effects when applied to the skull, probably because, owing to the diffusion of the current, only a small quantity passes through the cerebrum.

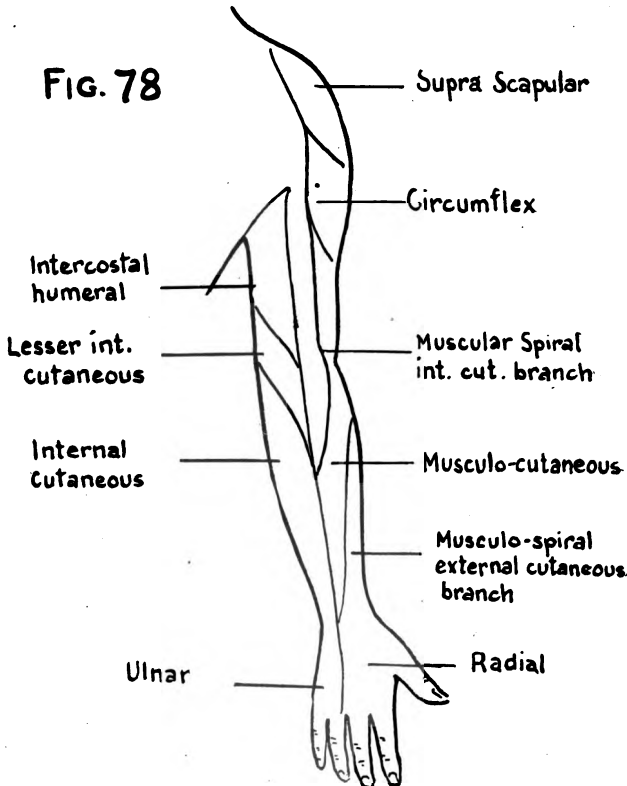
Professor Leduc, as the result of experiment, has concluded that negative applications to the brain stimulate its functions, while positive applications have a quieting and depressing action.

Thoracic and Abdominal Viscera.—From what has already been learned of the effect of those types of currents thus far studied, it could fairly be concluded that they would exert a stimulating effect upon glandular secretions and upon peristaltic action, and the clinical use of these currents amply confirms these conclusions.

Motor Points.—In testing muscles the testing electrode is placed



over the point where the greatest muscular contraction is secured with the least current. These points upon dissection are found to be the points where the main nerve enters the muscle. They are found to vary somewhat in different subjects, and the amount of current required will, of course, vary with the amount of subcutaneous fat present. These motor points for the whole body have been carefully plotted out, and are well displayed in Ziemssen's plates, of which Figs. 77 and 78 are illustrations, the former showing the motor points for the dorsal aspect of the arm and hand, the latter, the cutaneous distribution of nerves in the same location.



The student will find it a useful exercise to verify these points and areas upon his own body, in order that he may learn the behavior of normal muscles under electrical stimulation, and be prepared to recognize such deviation as may appear in actual practice.

Testing should begin with the interrupted and end with the continuous current. When using the continuous current, the student should begin with a pressure of about twenty volts applied to a muscle of the lower extremities. He should use the kathode, and watching the milliam-

pere meter should note when the closing contraction is obtained. He should then move the electrode in order to find the best point for securing such contraction. He should then compare the anodal closing contraction with the kathodal closing contraction, and note whether the contraction is brisk or sluggish. He should next apply the electrode to the nerve trunk and notice its effect upon the muscles which it supplies. Corresponding portions of the body may be compared, in case of bilateral affections the student may make comparison with his own electrical reactions.

Changes in Electrical Reactions.—We are now prepared to analyze effects produced by electrical stimulation. These may be embraced under two heads: (a) quantitative and (b) qualitative. The former refers to variations in the quantity or amount of response to electrical stimulation. The latter has reference to changes in the quality or character of the response to such stimulation. Under this class may be included the reaction of degeneration, the myotonic reaction and the myosthenic reaction.

Quantitative Reactions.—These do not have very great value, because there is a certain range of variation in the responses of normal muscular tissue. Again, variations may be due to the degree of cutaneous moisture, to the location of the testing electrode, with reference to the motor point, to different degrees of pressure of the electrode, or to difference in resistance of the skin which manifest themselves during the test. Certain inferences, however, may be drawn with caution. If by comparison with one side the muscular reactions are produced with a weaker current than is necessary to produce similar contractions upon the other side, an increased excitability may be inferred. Where both sides are affected, comparison may be made with currents necessary to produce similar contractions in patients whose condition is normal.

Where there are marked variations in quantitative reaction this method furnishes positive results. Increased irritability usually accompanies disease in which there are exaggerated reflexes, diminished irritability in which there is a tendency toward abolition of reflex action. We might, therefore, fairly expect to find the former in chronic myelitis, degeneration of the lateral columns, hemiplegia, etc., and the latter in acute anterior poliomyelitis, neuritis, fatigue, etc.

Qualitative Reaction.—Here we have to consider the reaction of degeneration, a term introduced by Erb, to signify chiefly a delayed or sluggish response to muscular contraction under the influence of the direct current. Normal muscle, in its response to electrical stimulation, contracts promptly; muscles showing the reaction of degeneration respond sluggishly to the direct current, and not at all to rapidly interrupted currents. In like manner nerves showing the reaction of degeneration

give no response to electrical stimulation, while muscles similarly affected do not always show a decreased contractile power. They may, indeed, show a stronger response than normal muscular tissue, but if they show the reaction of degeneration, their response will be slow and retarded.

Conditions Leading to the Reaction of Degeneration (written R D for brevity).— Where R D has been found we may infer (a) that there has been destruction of one or more cells of the anterior horn of the gray matter of the spinal cord, as in anterior poliomyelitis; (b) that there has been a corresponding damage to the nucleus from which the cranial nerve proceeds; or (c) that there has been section or other damage to a nerve trunk. R D does not follow paralysis of cerebral origin unless the nucleus or the cranial nerve, which issues from it, has been involved. It does not occur in diseases of the white matter, nor in hysterical paralyses.

Longitudinal Reaction.— By this is meant the observed fact that when the testing electrode is applied to the motor point of a muscle showing R D, the motor response is less than when it is applied to the distal end of the muscle, as this is a reversal of the rule in healthy tissue, it is a significant and important observation.

Partial Reaction of Degeneration.— It was noted above that in the complete reaction of degeneration muscles do not respond to rapid interruptions of the current. If, however, partial degeneration is present, some contractile power may remain. Therefore it is necessary, in order to avoid the danger of concluding that the muscles are normal, to supplement the test with the direct current which will reveal the usual sluggishness of response.

Conclusions as to the Value of these Tests.— Tests made with the direct current depend largely for their value upon the recognition of the sluggish action of the muscles. As the degree of response is a matter of the operator's judgment, it can readily be seen, in the absence of any precise standard of measurement, that the method, while it affords *data* for diagnosis in many cases, is yet lacking in positiveness and certainty, more especially in estimating the degree of possible damage.

Absence of response, both in nerve and muscle, to the stimulation from rapidly interrupted currents points to the conclusion that the cells from which the muscles receive their nerve supply have been damaged. If the muscles respond to rapidly interrupted currents, but contract sluggishly to the stimulation of direct currents, the inference would be that the damage was less extensive. The use of the direct current serves to correct erroneous conclusions drawn from the action of induced currents, and to confirm these conclusions when they are properly drawn.

Myotonic Reaction.— Reference has already been made to the fact that while apparently there is a complete subsidence of the effect of electrical stimulation succeeding a muscular contraction, yet a portion of the effect

continues. This occurs in normal conditions. In Thompsen's disease, however, both continuous and interrupted currents throw the muscle into tetanic contraction, which persists from five to thirty seconds after the testing electrode is removed.

Myasthenic Reaction.—This occurs in grave myasthenia, where the muscle has been tetanized for some time by the interrupted current. After a time a decided decrease in the amount of response ensues, but if a single closing contact be made with the direct current, the electric response is as vigorous as it was before the tetanization.

(To be continued)

MULTIPLE LEMON PROPERTIES

BY ROBERT GRAY, M.D., PICHUCAICO, CHIAPAS, MEXICO

The medicinal and dietetic value of the lemon is generally but little known and less appreciated by the medical profession.

In clysters, it destroys the germs of Asiatic cholera and typhoid fever.

Combined with castor oil, olive oil, and table salt, it has a precious value in diarrhœa and dysentery, and also makes the safest purge in yellow fever.

Is antiseptic in a high degree, and anti-bilious. Aborts influenza when given in hot whiskey. Useful as lemonade on empty stomach the first thing in the morning. In strong, black coffee, cures malaria slowly, yet surely. A teaspoonful of the juice in a cupful of strong tea cures a nervous headache. In lemonade strength, makes the best tooth wash against tartar and foul breath.

Rosewater and lemon juice remove tan and whiten skin. Hoarseness is removed by lemon juice and loaf sugar. Lemon juice externally relieves the irritation of insect bites. Lemon juice, honey and alum, make a prime croup remedy. Of inestimable value in pneumonia, and indispensable in the treatment of all fevers in my practice. The best thing extant for thirst accompanying labor pains. Refreshing after exposure to extreme heat.

Probably all cooks and most housewives know how to make numerous delicious dishes from the lemon, which it is needless to recount.

Equal parts lemon juice and olive oil make a superior salad dressing. A teaspoonful of lemon juice in water, cooking sago or rice, imparts whiteness and a delicate flavor. Lemon juice and salt remove stains from white goods. A teaspoonful of lemon juice in water cooks tough meats tender.

THERAPEUTIC NUGGETS

SOME RHEUMATIC REMEDIES

Spec. Med. Arnica.—When your rheumatic patient complains of weariness and a soreness in all portions of the body, combined with pain in the joints, and muscular pain when the limbs are moved, this remedy will prove useful. Add ten to fifteen drops to four ounces of water, and give in teaspoonful doses from every half hour to every two hours.

Ammonium Bromide. The person who needs this drug will describe painful muscular contractions that increase in their severity during the night. For such conditions two to ten grains may be administered, well diluted, every two to three hours.

Spec. Med. Colchicum.—The history of the cases demanding this remedy will indicate very clearly the possession of a gouty or rheumatic diathesis. They will tell you that their pains are of a sudden character, that they are sharp and tearing, running from the back and hip down the leg, and from there, pointing out the painful location, you will observe that the pain follows the course of the nerve. These pains are apt to be increased by worry. *Dose:* Twenty to thirty drops of this agent should be added to four ounces of water, and a teaspoonful given every one or two hours. Sometimes it will be necessary to increase the size of the dose until the bowels are freely acted upon. As soon as this occurs the dose may be lessened and continued until the distressing symptoms are overcome.

Lithium Citrate.—Whenever you meet with swellings of the joints that are of rheumatic or gouty nature, especially if combined with uric acid deposits, this agent may be employed with great advantage. Two to three grains should be given in two or three ounces of hot water four or five times a day.

Spec. Med. Bryonia.—The patient who needs this drug will describe the pains as being aggravated by motion. By questioning you will discover that the pain is of a sharp and cutting character; that they are located for the most part above the waist line; that the joints are swollen stiff, and very painful. This agent should be given in small doses. Add ten drops to four ounces of water, and give in teaspoonful doses every one, two, or three hours, according as the case is more or less acute, the acute case needing the more frequent dosage.

DEPARTMENT OF DIETETICS

THE DIETETICS OF SUGAR

By J. A. DENKINGER, M.D., BOSTON, MASS.

Concluded from page 125.

Milk. The milk "cure" for diabetes was first suggested by Rollo, Winternitz, Strasser, and Kolisch, who are strong advocates of the milk cure; they have reported excellent results from the use of milk. Winternitz recommends about four quarts of milk daily. Even Von Noorden testifies to the remarkable tolerance for milk exhibited by many patients, and considers it a fact of great therapeutic importance. He remarks, however, that, just as in the case of levulose, the tolerance is not always lasting. It disappears when the milk diet is long continued, so that the milk cure is unfortunately not of universal application; he further advises that the milk cure should not be used in mild cases of diabetes, and opposes a strict plain milk diet in all cases of diabetes, and recommends alternating plain milk with buttermilk, koumiss, cream, etc. Williamson found that glycosuria is in some cases unchanged, in others increased by milk.

Of American authorities, Wilcox and Forchheimer have recently commended the use of milk in diabetes.

Skim milk. Donkin reported excellent results from the use of skim milk, the regimen being followed either by a great reduction or complete disappearance of sugar. The maximum quantity allowed is twelve pints of fresh, not boiled, skim milk per day. Winternitz and Strasser have corroborated Donkin's claims. Buttermilk and koumiss, in which the sugar has been more or less destroyed in the process of fermentation (being changed into lactic acid), are often very useful in diabetes, and are well borne when plain milk fails to do so.

Cane sugar. The results reported from the use of cane sugar are generally much less favorable than with levulose and lactose. According to Külz, cane sugar toleration lies midway between levulose and dextrose. Von Noorden believes that clinical experience does not favor such a view, and that Külz underrated the bad effect of cane sugar, which he believes should be banished from the table of diabetics, both in cases of severe and slight glycosuria. Von Pettiti found cane sugar more poorly utilized than any other sugar. Cohen and Herter found it better utilized than dextrose; and Teschenmacher and Oefele report that many diabetics have a surprising tolerance for cane sugar, the latter stating that eighty-eight per cent can take thirty-five grams (six ordinary lumps) of cane sugar

per day. If cane sugar is ingested in large quantity, it may pass directly into the urine unchanged. This applies also to lactose and levulose.

Maltose. According to most authorities, maltose is very poorly assimilated in diabetes. In the experiments reported by Palmas, maltose made a very bad showing. More recently, Falta and Gigon, in an exhaustive study* report that maltose is very badly borne in diabetes, in fact, more poorly tolerated than any other sugar experimented with, not excepting dextrose. The authors are at a loss to completely account for this, but state that the bad showing made by maltose in a way explains the general bad effect on diabetics, of indulgence in beer and other malt liquors. As to malt liquors, Naunyn remarks that "while their carbohydrate percentage is rarely under six per cent, they are far more injurious than can be explained by reason of their sugar content, and that the harmfulness of malt liquors in diabetes is due to the fact that the greater portion of their carbohydrates is maltose, which rapidly decomposes in the intestine into dextrose, for which reason the diabetic ingests through malt liquors the most dangerous carbohydrate food." Von Noorden, too, remarks that certain people have very little tolerance for maltose, who can take relatively large quantities of other sugar. This, of course, applies to any sugar, and while I am far from recommending maltose as one of the least harmful sugars in diabetes, I have the records of several cases, where food rich in maltose and dextrin, such as malted milk, Horlick's Food, and Mellen's food were remarkably well tolerated by diabetics. Quite likely these cases are on par with Teschenmacher and Oefele's cases of tolerance for cane sugar, and Forchheimer's case of tolerance for dextrose.

When maltose is administered to diabetics it is eliminated as dextrose, except when large quantities of maltose are ingested at one time, in which case it may be excreted in the form of maltose.

Dextrose. Practically all authorities agree that dextrose is less perfectly assimilated by diabetics than any other sugar; there are cases, of course, where even dextrose has proven useful. Forchheimer, in his excellent work (*The Prophylaxis and Treatment of Internal Diseases*) mentions the case of one of his patients, "who takes commercial glucose, not only with impunity but with benefit to herself," adding sagely, "that it is only by trying the different forms of carbohydrates that we can tell which one will be of benefit to the individual patient."

This is indeed the only conclusion possible after all that has been said on the subject by the most eminent students of the subject.

General dietetic management of diabetes. One of the first steps in the management of a case of diabetes is to ascertain the patient's tolerance for carbohydrates. This is done by placing the patient for a few days

* "The laws of sugar elimination in diabetes." *Zeitschrift für Klinische Medizin*, Vol. 61. Nos. 3 and 4, 1907.

on what Von Noorden calls a "standard" diet. This diet consists, in addition to the usual amount of fat and proteid in a normal diet, of a certain quantity of carbohydrates, usually one hundred grams of wheat bread per day, containing about sixty grams of carbohydrates. The amount of the several food stuffs (especially the carbohydrates) ingested during twenty-four or forty-eight hours should be determined as correctly as possible, and compared with the urinary findings for the corresponding period, viz.: amount of urine, specific gravity, sugar content, acetone bodies (if present). If no sugar is found in the urine, the amount of carbohydrates is increased by adding from thirty to fifty grams of bread or its equivalent in carbohydrates. This is continued until sugar is found in the urine, which stage represents the patient's carbohydrate capacity, i.e., the amount of carbohydrates his organism is able to assimilate.

To determine the carbohydrate capacity of a patient *who is excreting sugar on the "standard" or test diet*, the quantity of carbohydrates (bread) in the diet is gradually decreased until the sugar has disappeared from the urine.

On the basis of degree of carbohydrate tolerance, cases of diabetes have been divided into three classes — the mild, the moderately severe, and the severe.

Mild cases include that class of cases where the urine is free, or nearly, from sugar after a few days on a starch-free diet, as well as those cases exhibiting no sugar on a diet containing a small quantity (fifty to one hundred grams) of starch.

In the mild cases the main object of the treatment is to cause the disappearance of the sugar from the urine. First, to prevent the case from developing into a more severe type, and secondly, to increase the carbohydrate tolerance of the patient. This is best accomplished by complete (but gradual) withdrawal of the carbohydrates from the diet for short periods of time ("resting" the sugar-metabolism — Croftan), and then very gradually adding a little carbohydrate to train or educate the sugar-assimilating capacity to normal. During the period of carbohydrate exclusion, the carbohydrates should be replaced by their caloric equivalent of fat to prevent loss of flesh and strength. A strict diet is unnecessary in the mild cases. In the mildest cases it suffices to exclude sugar and to limit the ingestion of starches, in order to eliminate the sugar and to diminish the amount of urine. Care should be taken, however, not to exceed the toleration limit of carbohydrates, and if at any time sugar appears, the carbohydrates should be restricted in amount, or excluded altogether until the urine is again free from sugar.

Moderately severe cases include that class of cases where a starch-free diet for several weeks is necessary before the urine is free from sugar, and cases where the sugar is markedly diminished, but not completely checked by a strict starch-free diet.

Croftan recommends that this class of cases "be placed, for at least two months, upon a carbohydrate-free diet, and after the degree of tolerance (provided they can tolerate any carbohydrates) is established, the addition of carbohydrate food made very gradually and kept up for a short time only." Croftan also cautions against giving too much proteid food in these cases, as it tends to reduce the tolerance for carbohydrates, besides favoring acidosis.

In the severe cases, the excretion of sugar continues in spite of withholding carbohydrates for weeks or months, and reducing the proteids in the diet, indicating that the urinary sugar is derived from the proteids of the food. In this class of cases less attention should be paid to the symptom glycosuria, and more to maintaining the general nutrition and making the patient comfortable, to accomplish which, and to compensate for the loss of sugar an increase in the amount of albumen and fats is recommended, but as such a diet is very liable to develop acidosis and coma, a certain amount of carbohydrates are added, at the risk of increasing the glycosuria. Naturally, at this stage, carbohydrates have no food value, being promptly excreted in the urine, but their administration contributes materially to the comfort of the patient and enables him to eat enough of the necessary fat and proteids to maintain nutrition.

As experience (especially the treatment of the more severe cases) has shown that the capacity for carbohydrates grows less and less the longer the diet remains unrestricted, Naunyn and others instituted the plan to periodically restrict their diabetic patients to an exclusive fat-proteid diet for several days every month, with the salutary effect of materially increasing the carbohydrate-assimilating capacity of the patients, a rigid diet for a few days, or, where practical, weeks, resulting almost invariably in greater carbohydrate tolerance. Much benefit is also derived from an occasional fast day (Naunyn and Von Mering), one day in seven, on which only fluids are permitted. (Austin Flint obtained good results by keeping his cases in bed and without food, from Saturday night until Monday morning.)

To summarize. Very few diabetics can subsist on a carbohydrate-free or strict diet very long, and most diabetics can and should take moderate quantities of carbohydrates. Complete and permanent withdrawal of carbohydrates is not only unnecessary, but the comfort of the patient, continued emaciation, with loss of strength, the gastric intolerance induced by a strict diet, and such sequæ as acidosis and coma, all call for carbohydrates, especially the more easily assimilated carbohydrates. Such a diet may increase the elimination of sugar, but this is far less injurious than restricting the patient permanently to a carbohydrate-free diet.

In this connection, it is also well to remember that a small amount of sugar in the urine is compatible with health, and that the maintenance

of the patient's strength and body weight, and the prevention of acidosis and coma are of more importance than clearing the urine of every trace of sugar. As to the degree of toleration of the different carbohydrates in diabetes, it is now generally agreed that the starches are better tolerated (assimilated) than the sugars, and it is fortunate that patients bear the deprivation of sugar better than of starches. Amongst the most easily assimilated and tolerated carbohydrate foods for diabetics, are potatoes, oatmeal, and rice. In the selection of a carbohydrate it is well to make use of those carbohydrates to which the patient is accustomed and which he craves most, and as the deprivation of bread and potatoes are always keenly felt by most diabetics, these articles of diet should always be given a trial. Experience has also shown that giving only one carbohydrate at a time produces better results than two or more carbohydrate-containing foods taken during the same meal. To vary the monotony of food, as well as to increase the carbohydrate tolerance of the patient, it is of advantage to alternate carbohydrates, such as changing from bread to potatoes, and from potatoes to rice or oatmeal, etc.

As to sugars: Levulose (especially as found in fresh fruits) is probably the least objectionable and most useful of the sugar family for diabetics. Lactose comes next, especially as given in the form of milk, either plain or (preferably) in the form of koumiss or buttermilk. Cane sugar, maltose, and dextrose are best avoided, and the same applies to syrups, molasses, jams, confectionery, and sweets in general.

"The loss of time is the most hopeless and absolute loss we can sustain. Fortune may return after having taken her flight. But our buried years can never come back to us from the grave. . . . There is but one point at which time is entirely in our power and in submission to our will. That is at its beginning."

"There are no times in life when opportunity, the chance to be and to do, gathers so richly about the soul as when it has to suffer. Then everything depends upon whether the man turns to the lower or the higher helps. . . . If he turns to God, the hour of suffering is the turning hour of his life."

— *Phillips Brooks*

THE MEDICAL ROUND TABLE

DRUG THERAPY

CALCIUM SULPHIDE IN BOILS

EDITOR JOURNAL OF THERAPEUTICS AND DIETETICS:

Some years ago I suffered from successive crops of boils on the back of my neck. After I had tried all the usual remedies without any benefit, my friend, Dr. Johnson, advised me to try calcium sulphide. As I had used this remedy in several cases without benefit a few years before, I had no confidence in it, but as my friend was positive that it would cure me, I finally consented to make a trial of it, if only to satisfy him. I began by taking one half grain tablet every two hours for two days, and after that, every four hours. The result was certainly very surprising to me, as the boils began to dry up in two or three days, and within a week I was entirely free from them.

Since then I have used this remedy many times in similar conditions, and it has never failed me but once, and then the failure was due to the inferior quality of the drug employed. I find that calcium sulphide is a difficult drug to prepare in such a way as to insure its keeping qualities, and that nine tenths of the drug, as found in the market, is very nearly or quite inert. In fact, I believe that this is the reason why physicians differ so widely as to its virtues. I am sure that it was the cause of my own early unfavorable impressions. I have found but two firms that can be relied upon to furnish a reliable article, and one that will keep well, although I have no doubt there are others.

W. W. BROWNE, M.D.,
Woonsocket, Rhode Island.

I wrote to Dr. Browne, reminding him that it is our rule to "specify our working tools," and asked him to give me the names of the two firms whose products he has found most desirable, and he replies that they were Mulford, of Philadelphia, and the Abbott Alkaloidal Co., of Chicago. We shall be glad to hear from others of our readers on this subject. I have had some recent personal experience with this drug, but its value will be increased by waiting a few weeks longer before reporting it.

J. M. F.

FRACTIONAL DOSAGE BEST

EDITOR JOURNAL OF THERAPEUTICS AND DIETETICS:

Anent the question of dosage, as discussed in the December JOURNAL, it seems to me that the mistake you all make is too much dosage too far apart. Were you to fraction your dose and repeat more frequently, you would realize better satisfaction, whether in galenic or active principle medication. Thus tolerance is intensified. Divide your two-hour dose, increased one eighth, into nine fractions, giving one fraction every fifteen minutes, dosage being large and substance perilous. In desperate pneumonia cases I give amorphous aconitine, grain 1-134 every fifteen minutes for eight to twelve times. And in rebellious cases of pernicious fever, Merck's German antifebrin — acetanilid — three and one half grains in solution every thirty minutes, till eight doses have been taken, if necessary, without eventful complications, which are inevitable if administered in one dose. Frequently the fever terminates before the sixth dose is reached; and in ninety-seven per cent of cases the eight doses suffice, and the result surpasses any quinine influence in power to dominate such fevers.

ROBERT GRAY, M.D.,

Pichucalco, Chiapas, Mexico.

Dr. Gray has had a wide experience with the diseases of tropical climates, and his words in relation to method of dosage are worth listening to. His remedies are very largely the alkaloids and active principles, but the rules he gives can be used equally well with the galenics. We invite other readers to give us their experience in this matter. What system of dosage have you used, or if more than one, which one has given you the best satisfaction?

J. M. F.

DIETETICS.

LEMON CURE

Query: Please give dieto therapeutic indications of the "Lemon Cure."

Lemons have been used successfully in the dietetic treatment of a number of diseases, such as jaundice, due to torpidity of the biliary function, in the treatment of oxaluria, scorbutus, seasickness, obesity, and in constipation of the chronic atonic type. It has also been claimed that the free use of lemons will obviate gallstones. Pure lemon juice applied to the nostrils is an excellent remedy for nosebleed. Lemon juice is also useful in relieving itching of the skin; diluted with water it is a much relished and beneficial beverage in intermittent fever and other fevers.

In gout and rheumatism, the juice of two or three lemons, three times a day, has a well-deserved reputation as a curative "agent." Unlike vinegar, lemon juice is not a product of fermentation, but a most healthful, natural product. The dieto-therapeutic value of lemons is due to the combination of citric acid and potash salts found in the juice. Each fluid ounce of the fresh juice contains from thirty-five to forty grains citric acid, along with a little sugar and gum, and a residuum which yields (icinerated) potash, lime, and phosphoric acid. According to Fernie, lemon juice does not remain acid in the stomach, the citric acid of the lemon being combined with potash, becomes burnt off quickly in the body, leaving its alkaline base to neutralize excessive gastric acidity, and in cases of rheumatism, the "rheumatic acids," thus subduing the disease. Whatever the explanation, the good effect of the "lemon cure" in the treatment of gout and rheumatism is unquestioned, and is well worthy a trial.

DIETETIC TREATMENT OF INSOMNIA

Query: Please give the dietetic, and if space permits, the hydrotherapeutic treatment of insomnia.

It is now generally believed (although the matter is by no means settled) that just as the cerebral circulation is intensified by cerebral activity, normal sleep is accompanied by (relative) anemia of the brain; the circulation and blood pressure in the brain diminish, and the heart beats more slowly. In most if not all forms of insomnia, hyperæmia of the brain is the rule. Insomnia, which is, of course, only a symptom, often a symptom of grave import, may be due to divers causes, such as pain, excessive mental activity, undue mental excitement, worry, toxins, and in want of a better name — nervous exhaustion or neurasthenia. It is also caused by overfeeding, i.e., eating too heavily or eating improper food within a short time before retiring. It is likewise caused by the opposite extreme — starvation — retiring on a stomach that has been empty for too many hours. The treatment of insomnia or of restless, disturbed sleep, due to overeating or eating improper i. e. indigestible food shortly before retiring consists simply in eliminating objectionable articles from the diet and allowing a three or four hour interval between the last meal and the hour of retiring. In the insomnia, due to pain, nothing short of morphine or some other hypnotic or analgesic will afford prompt relief. It is in the insomnia due to excessive mental activity, excitement, worry, neurasthenia, and a starved stomach that simple dietetic and hydrotherapeutic measures afford great relief.

The *rationale* of the treatment, whether hydrotherapeutic or dietetic, is to decrease the hyperæmia of the brain, by directing the blood to other

parts of the body. A small amount of easily digested and assimilated food, such as a glass of hot milk, malted milk, or even hot beef tea with a few crackers, taken immediately before retiring is often wonderfully effective in drawing the blood from the brain to the stomach and bowels, thus relieving the cerebral hyperæmia and inducing sleep. Personally, I have obtained the best results in relieving or "curing" insomnia of the types named, with a glassful of hot malted milk (Horlick's) taken just before retiring. In a measure, of course, the malted milk acts the same as plain hot milk, but whether it be due to the partially predigested milk, or the extract of the malted cereals of which malted milk is composed, or both, I have found that the malted milk produces a soothing, sedative, and hypnotic effect not obtainable with plain, hot milk. Moreover, unlike plain, hot milk, which is disliked by many patients, and which disagrees with many more, giving rise to headaches, or causing "biliousness," besides being constipating in effect, malted milk is relished by most persons and does not constipate or produce other untoward effects. Coffee, tea, cocoa, and chocolate should be avoided by patients suffering from insomnia, as they tend to stimulate wakefulness and mental activity, and with the exception of a moderate quantity of malt liquors, such as malt extract, ale, stout, porter, alcoholics are best avoided. The malt liquors named have an undeniable soporific effect. Both Hutchison and Hutchinson are warm advocates of bottled stout for insomnia. The soporific effect of the malt liquors maintained is said to be due to their hop contents. Personally, I believe that their malt contents have more to do with it than hops.

Large quantities of fluid, even water, should be avoided on account of their tendency to produce excessive vascular fullness.

Of the hydro-therapeutic measures of proven value in the relief of insomnia may be mentioned hot spinal sponging or gently pouring hot water down the spine. Less agreeable, but frequently wonderfully effective is the cold douche, applied by means of a large sponge, soaked in cold water and dashed against head, face, and chest, after which the skin is rubbed dry with a rough towel. A cold, wet compress over the abdomen or at the nape of the neck serve the same purpose.

Hot foot baths or sitz baths, to which may be added a little mustard, are also very useful. Massage of the abdomen at the time of retiring also induces a dilation of the large abdominal vessels and tends to diminish the volume of the blood bound for the brain. Deep breathing exercises, resulting in increase of blood supply for the lungs, also tend to diminish the cerebral hyperæmia. Cold feet, which are a frequent accompaniment of insomnia, should be kept warm with hot water bottles or other means.

BOOK REVIEWS

Electrical Treatment, by WILFRED HARRIS, M.D., F.R.C.P., Physician to Out-patients, Physician to the Department for Nervous Diseases, and Lecturer on Neurology, St. Mary's Hospital; Physician to Out-patients, Hospital for Epilepsy and Paralysis, Maida Vale. Illustrated. Cloth, 16mo, pp. 383, \$2.25 net. W. T. Keener & Co., Chicago, 1908.

This work on electrical treatment of disease is written, according to the words of the author, for the purpose of giving particular attention to the work that may be done in medical practice with a good faradic and galvanic battery. He has carried out this intention with considerable ability and many useful hints may be garnered from its pages. It is to be regretted, however, that he has not dwelt more fully upon the principles which underlie the use of the electric current as a therapeutic agent.

The Every-day Diseases of Children, and Their Rational Treatment. By GEORGE H. CANDLER, M.D. The Clinic Publishing Co., Chicago, Ill. 12mo, cloth, 386 pages, price \$1.

This little book is not intended for the specialist in diseases of children, but for the every-day general practitioner, who, after all, has to look after and treat the bulk of all the diseases of children the country over. And a careful inspection of the book, together with a trial of some of the suggestions and directions therein given, shows it to be of more than the ordinary value. It does not follow so closely the authorities; its descriptions are sometimes more practical than classical, and a good deal of attention is given to the little things that make up the bulk of the great things of every-day practice. Incidentally, a good many of the remedies suggested are prepared in the form of the alkaloids, and as this work is the only one published in America (to our knowledge) which does this, it will be hailed with pleasure by the large and increasing class of alkaloidal practitioners throughout the country.

J. M. F.

Human Foods, and Their Nutritive Value, by HARRY SNYDER, B. S., Professor of Agricultural Chemistry, University of Minnesota, and Chemist of the Minnesota Experiment Station. 12mo, pp. 362, cloth, price \$1.25 net. The Macmillan Company, 66 Fifth Ave., New York City.

This unpretentious work is one that should be added to the library of every physician who is at all interested in the best methods of feeding both the healthy and those who have wandered away from the normal standard. The chapter on the "Comparative Value and Cost of Foods" is one of great interest and practicability. The value of the book is greatly enhanced by appropriate illustrations.

Essentials of Homœopathic Materia Medica and Homœopathic Pharmacy, being a Quiz Compend upon the Principles of Homœopathy, Homœopathic Pharmacy, and Homœopathic Materia Medica, arranged and compiled for the use of students of medicine, by W. A. DEWEY, M.D. Fourth edition. 372 pages. Cloth, 12mo, \$1.75 net. Flexible leather, \$2.00 net. Postage, 11 cents. Philadelphia, Boericke & Tafel. 1908.

This book is admirably adapted for its mission — the introduction of the “*Essentials of the Homœopathic Materia Medica*.” There is not a dull page in the entire book, and much valuable information is closely packed inside the covers. Its large sale is the best attestation of its worth.

On Infantilism from Chronic Intestinal Infection, Characterized by the Overgrowth and Persistence of Flora of the Nursling Period. A Study of the Clinical Course, Bacteriology, Chemistry and Therapeutics of Arrested Development in Infancy, by C. A. HERTER, M.D., Professor of Pharmacology and Therapeutics, Columbia University. 12mo, cloth, pp. 118. Price, 90 cents, net. The Macmillan Company, 66 Fifth Ave., New York City.

The conclusions arrived at in this monograph are based upon a series of ten cases seen by the author, and they are certainly of an interesting character, especially to those whose practice is largely devoted to pediatrics.

Diseases of the Nervous System, by JOHN EASTMAN WILSON, A.B., M.D., Professor of Diseases of the Nervous System, in the New York Homœopathic College and Hospital, Professor of Nervous Diseases in the New York Medical College and Hospital for Women; Consulting Neurologist to the Middletown State Homœopathic Hospital, Middletown, N. Y.; Neurologist to the Flower Hospital, Hahnemann Hospital, Laura Franklin Free Hospital for Children, in the City of New York, and St. Mary's Hospital, Passaic, N. J. 8vo, pp. 500. Price, cloth, \$3.50; half morocco, \$4.50. Boericke & Runyon, 11 West 42d St., New York City. 1909.

Very much can be said in commendation of this very excellent work, and whoever consults its pages will be sure of obtaining much helpful information. One of its strong points is the physical therapy that is advised in those nervous phenomena where such treatment is being found advantageous by those who are the most competent judges — the workers with the various physical therapy modalities. The book is well worthy of being added to the library of any physician who is called upon to treat nervous disorders.

Therapeutics of the Circulation. Eight lectures delivered in the spring of 1905, in the Physiological Laboratory of the University of London, by

LAUDER BRUNTON, Kt., M.D., D.Sc., LL.D. (Edin.), LL.D. (Aberd.), F. R. C. P., F. R. S. Consulting physician to the St. Bartholomew's Hospital. Published under the auspices of the University of London. With two hundred and forty illustrations. 8vo, pp. 280. Cloth, price \$1.50, net. P. Blakiston's Son & Co., 1012 Walnut St., Philadelphia, 1908.

This book is a valuable contribution to medical literature in its chosen field. Its teachings are based upon actual experiments, the larger portion of which are illustrated very fully. In the appendix may be found descriptions and views of all the newer instruments for measuring the blood current. The action of many of our remedies upon the heart are stated with great clearness.

With the Pilgrimage of the Imperial Council, Ancient Arabic Order of the Nobles of the Mystic Shrine to Los Angeles, California, April-May, 1907, via Grand Canyon of Arizona, Southern California, Pacific Coast, and Canadian Rockies, by GEO. E. PORTER, M.D., Newark, N. J. Fully illustrated, printed on tinted paper. Price, \$1.50 up, according to the style of binding. To be obtained of the author.

While this book must possess special interest for those who were fortunate enough to compose the party, still it cannot fail to bring many pleasant thoughts to any reader who has been over the route so graphically depicted. To those who have not seen the wonders portrayed, it should prove a stimulus to cause them to resolve to see for themselves at no distant day.

Practical Points in Anesthesia, by FREDERICK EMIL NEEF, B.S., M.L., M.D., New York. 16mo, pp. 50. Price, semi de luxe, cloth, 60 cents, postpaid. Full library de luxe, flexible leather, \$1.50, postpaid. Surgery Publishing Co., 92 William St., New York City.

This little book is indeed worthy of its dainty setting. Although small in compass it is filled with meaty suggestions that cannot fail to be of great value to those who con its pages.

Medical Inspection of Schools, by LUTHER HALSEY GULICK, M.D., Director of Physical Training, New York Public Schools, and LEONARD P. AYRES, General Superintendent of Schools, of Porto Rico, 1906-1908. Published by the Charities Publication Committee, New York. Nearly 300 pages. Cloth, price, \$1.

This is the first American work on the important subject upon which it treats. It tells the whole story up to date, in twelve chapters, treating of the following subjects: nature and aims of medical inspection; the argument for medical inspection; historical; inspection for detection of contagious diseases; work of the teacher in detecting contagious diseases; the school nurse; physical inspection for the detection of non-contagious

defects; vision and hearing tests by the teachers; administration; controlling authorities; legal aspects of medical inspection; retardation and physical defects. These are followed by a bibliography and three appendices.

The subject here treated is one of growing importance, and nowhere else can those who are interested find the information given in this book. It is of value not only to school physicians and superintendents, but to all persons interested in public schools and the training of children for good citizenship.

J. M. F.

Specific Medication, by ROBERT GRAY, M.D., Pichucalco, Chiapas, Mexico. Printed for the author by the Clinic Publishing Company, 1410 E. Ravenswood Park, Chicago. Pages, 56, with many blank leaves, bound in limp cloth. Price, \$1.

The author of this book was a surgeon in the Confederate army during the civil war, and for the forty-two years since that period he has made his home in the sickliest belt of the tropical zone, living always twenty-five miles or more from any other physician, with thousands of people, on big plantations scattered over six or eight leagues of territory, depending on him for medication. Under these circumstances, he has developed to the full that self-reliance, that quickness of perception, and that readiness to act, which are the country doctor's best assets. His book is divided into five chapters. The first treats of specific medication, the second of the active principles, the third of suggestive medication, the fourth of specialism, and the fifth of Mexico, the magic realm. It is full of interest from the first page to the last. It is the result of the author's wide experience, gives the strong points of his practice, and shows to some extent the sources of his success. But the most attractive thing about it is the abounding personality of the author.

J. M. F.

Therapeutics: Its Principles and Practice, by HORATIO C. WOOD, M.D., LL.D. (Lafayette, Yale, Pennsylvania), Emeritus Professor of Materia Medica and Therapeutics in the University of Pennsylvania; Member of the National Academy of Science. Thoroughly revised and rewritten by Horatio C. Wood, Jr., M.D., Associate Professor of Pharmacology in the University of Pennsylvania, Assistant Physician to the Philadelphia General Hospital. Fourteenth Edition. Philadelphia and London, J. B. Lippincott Company. Pp. 728. Cloth, price, \$5.

From its first appearance, in 1875, Wood's *Therapeutics* has held its place in the front rank of works on therapeutics. The first edition was unapproached by any then issued in its exposition of the physiological action of drugs; and each subsequent edition has been an improvement on the preceding. It needs no further recommendation to the medical profession.

J. M. F.

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EDITORIALS

FREAK LEGISLATION

THE following bill introduced into the Massachusetts Legislature this winter is a good example of the many attempts to procure "Class Legislation" that is most thoroughly at variance with the Constitution of the United States.

This bill accompanied the petition of V. Tranfaglia for legislation to regulate the dispensing of medicine by physicians, and was referred to the Committee on Public Health, January 14, 1909.

This V. Tranfaglia, who presented the petition and draft of the bill, is a registered druggist doing business in the town of Revere, Mass.

COMMONWEALTH OF MASSACHUSETTS

In the Year One Thousand Nine Hundred and Nine

AN ACT

Relative to Physicians

Be it enacted by the Senate and House of Representatives in General Court assembled, and by the authority of the same, as follows:

SECTION 1. It shall be unlawful for any physician to compound or dispense any medicine intended for the use of any human being, unless such physician is a duly qualified pharmacist under the law of this state, except in cases of emergency; and all medicines compounded or dispensed in such cases of emergency shall be administered by such physician in person or under his immediate direction; and a record of such compounding or dispensing or both, as the case may be, of such medicine, specifying the date and the ingredients and the quantities thereof, and the name and address of the person for whom compounded or dispensed shall be made by said physician and recorded with ink in a suitable book to be kept by said physician. Said record shall be entered upon said book by said physician within twenty-four hours after the delivery of said medicine or the administration of any part thereof to the patient. Said record shall be preserved by said physician for the period of at least one year and shall be open to the inspection of the patient to whom such medicine was administered, and to the inspection of, the husband or wife or any parent or child of such person, or to the duly authorized attorney of any such person or persons.

In all cases of emergency as hereinbefore specified, or where the physician shall be also a registered pharmacist, when the physician shall have compounded or dispensed the medicine administered to the patient, and the patient shall die five days after the administration of said medicine, it shall be the duty of the health officer or the board of health of the city, town, or county in which said death shall have occurred to ascertain and certify the cause of such death and said certificate made by the said health officer or board of health, as the case may be, shall be immediately deposited in the office of the said health officer or board of health, and shall be a public record and be permanently retained on file in such office.

SECT. 2. It shall be unlawful for any physician to collect or receive from any druggist or pharmacist, either directly or indirectly, any commission or percentage upon or any compensation for or on account of any prescription or prescriptions for drugs or medicine written by said physician, or sent, or directed to be sent, by him to said druggist or pharmacist.

SECT. 3. It shall be unlawful for any physician to recommend his patient or patients to any druggist or pharmacist, directly or indirectly, or to write, or cause to write recipes or prescriptions upon paper bearing any druggist's or pharmacist's business card or label or any part thereof.

SECT. 4. It shall be unlawful for any physician to order for any patient or patients, to leave with or send to any druggist or pharmacist, recipes or prescriptions unless so ordered by the patient or patients, his or her relatives or nurse in attendance.

SECT. 5. Any person violating any of the provisions of this law shall be punished for the first offence by a fine of not less than twenty-five dollars and for the second offence by a fine of not less than one hundred

dollars and for the third offence by a fine of not more than five hundred dollars, or by imprisonment of ninety days, or both such fine and imprisonment in the discretion of the court.

A hearing was granted upon this bill on February 11, 1909. The petitioner was the only one who appeared in favor of the bill and he was given leave to withdraw. This was the only outcome that could be expected when such a foolish request was made to restrict the liberty of the medical practitioner.

It would be far wiser to compel physicians to do their own dispensing, because by so doing he would become much better acquainted with the agents used and be in a position to select only the best for such prescribing.

PRETTY GOOD SCHEMES

It is a pretty good scheme to be cheery, and sing as you follow the road, for a good many pilgrims are weary and hopelessly carry the load; their hearts from the journey are breaking, and a rod seems to them like a mile; and it may be the noise you are making will hearten them up a while. It's a pretty good scheme in your joking, to cut out the jest that's unkind, for the barbarous kind of fun you are poking, some fellow may carry in mind; and a good many hearts have been broken, a good many hearts fond and true, by words that were carelessly spoken by alecky fellows like you. It's a pretty good scheme to be choring around while you can; for the gods with their gifts are pursuing the earnest, industrious man; and those gods in their own El Dorado are storing up wrath for the one who loafs all the day in the shadow while others toil out in the sun.

WALT MASON

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A NEW BOOK ON MEDICAL ELECTRICITY

FOR nearly a year we have been printing in our pages an excellent series of articles by Herbert McIntosh, M.D., entitled "First Steps in Medical Electricity."

These articles have far exceeded the amount of space that was first intended. As a result arrangements have been made whereby we shall publish, in the near future, a book with the same name by this author.

This work will be divided into two parts: Part I, "The Physics of the Various Forms of Electricity Used in Medicine together with a Description of the Needed Apparatus." Part II, "The Application of the Different Forms of Electricity to Abnormal Conditions and the Best Method of Their

Use; together with the Enumeration of those Departures from the Normal Standard that will be Successfully Affected."

The series of articles already published have been devoted to the first part. Commencing with our April issue we shall print extracts from the second part so that our readers may have an intelligent understanding of the treat that is in store for them when this entire work is published.

More detailed announcement of the particulars of this publication will be given in the next few issues of our JOURNAL.

FEEDING YOUR PATIENTS

IN the successes that come to the medical practitioner the manner in which he pays attention to the minute details of the little things plays an important part.

Other things being equal, the man who is most careful to observe closely the varying changes manifested by his patients is the one who will achieve the greatest results. Indeed this will prove to be true of many a patient student who has not the gifts of some man who, by means of his brilliance, stands high in the medical profession.

Among the details there are none more important than the manner in which the patients are fed. Food, to secure its best results, especially as far as the sick are concerned, must possess three important qualifications, viz: delicacy, palatability, and nourishment.

The following formula for a gruel which combines these three qualities in a most admirable manner was given me by a most successful physician, C. Edwin Miles, M.D., of Boston Highlands, Mass., who has given it with the happiest results to his patients for over a half century.

A heaping teaspoonful of flour, rye meal, corn meal, oat meal, or whatever cereal may be desired, are to be beaten to a batter in a little cold water. Add just a pinch of salt and one half pint of cold water. Place on the stove and boil for ten minutes; then add one half pint of milk and boil for ten minutes longer. As a result you will have a gruel that has been thoroughly cooked, and one that your patients will take with a relish. If necessary a little more salt may be added before it is served. Should there be any diarrheal affection a small piece of *stick cinnamon* should be added with the cold water and allowed to cook the entire time.

ANNOUNCEMENT

The last two numbers of the JOURNAL have been delayed by unavoidable causes. That of the February issue was caused by the illness of the editor, while this number has been held back by a fire in the printer's plant. From now on we expect to issue the JOURNAL about the middle of the month.

DEPARTMENT OF THERAPEUTICS

SOME REMEDIES FOR THE AGED

LYDIA ROSS, M.D., WATERTOWN, MASS.

The natural tissue changes incident to the period of declining year entitle the elderly patients to the physician's special therapeutic care. Here the indications point to a conservation of vitality and to maintaining the integrity of the tissues. In infancy the peculiar sensitiveness of the nervous system makes convulsions a familiar symptom; but at the other extreme of life, when the vital forces in the body are running at ebb tide, the pathology is of a degenerative or paralytic type, and a man is said to be "as old as his arteries."

Although in the aged the man and his body are usually both too well set in habit moulds to readily admit of change, yet much may often be done to encourage tissue metabolism and add to the general comfort and wellbeing of the patient. Where the balance between waste and repair is kept equalized and the mind is serenely active, the limitations of age may permit an average of more effective mental and physical activity than results from the erratic outputs of energy in a younger, stronger, but abused constitution. Moreover, the patient who is feeling the limitations of his years is often more willing and able to follow the physician's advice than the strong, busy man who has hitherto broken the physiological law without paying the penalty of serious disability. The reaction of some of the older generation to carefully selected treatment is often gratifying and surprising.

The subject of old age therapeutics is worthy of an extended study, but we shall here call attention mainly to stimulants. This is an important subject at an age when both the vital powers and the tissue resistance are declining. The typical action of a stimulant is to arouse and call forth the latent vitality in the system. By this means the case is tided over a serious crisis or is buoyed up through the depressing period of convalescence after debilitating disease. But the function of a stimulant is essentially a temporary demand upon the stored-up energies of the patient to keep him going until food and restoratives shall have added new energy to the depleted supply. The resources of the elderly constitution are unequal to a demand which it could have met in earlier life. Strychnia might be cited as a typical stimulant, invaluable where indicated,

but not a routine remedy for the elderly. It not only stimulates the nerves and brain, and contracts the heart muscle more vigorously, but through the vasomotor center it contracts the arterioles, thus increasing blood pressure. The action of strychnia might be described as pure push; it has the quality of increased tension. However much stimulation is needed in the aged patient, it is evidently unwise to increase the vascular tension where resistance of the arteries is questionable, and the system has but little latent vitality upon which to draw. The best uses of the drug in this class of cases is from combinations of small doses with other indicated remedies.

Alcohol, as a tissue conserver and as a diffusible stimulant in fevers and in conditions of collapse, would serve the same purposes in later life as at any age. The value of its continued use in moderate doses, by elderly persons, is a disputed question, and weighty evidence is offered *pro* and *con*. While its moderate use doubtless has the stimulating effect of a product of fermentation, its ultimate benefit is doubtful, as it lessens oxidization of tissues at an age when the waste processes are usually below par and the cells are needing the regenerating influence of natural metabolism. The aches and pains and stiffness which make the patient feel his years often depend upon the presence of suboxidized and waste material which call for an oxidizing and eliminating power not possessed by alcohol. A more logical line of stimulation would be the use of such remedies as tend to aid the system in performing its functional activities of repair and waste.

One of the first remedies to remember as a stimulant for old persons is xanthoxylum — the prickly ash. This drug is tonic, stimulant, carminative, diaphoretic, and alterative. Ellingwood compares it to strychnia and belladonna in action, while it is free from the toxic effect of either drug. It might be said that xanthoxylum combines the strychnia force of central stimulation with the belladonna power over the capillary circulation. For this reason it is an ideal diffusible stimulant for any age. But at a time of life when schlerosed and brittle arteries are often present, it is especially valuable in that it flushes the capillaries as a safety valve for the diffusion of increased force from the stimulated heart and nervous system. Furthermore, as the vital organs are relieved of the burden of a sluggish circulation, the gracious glow of active capillaries adds comfort and courage to the patient who "feels old." The diffusible quality of xanthoxylum stimulation upon the heart and nerves, and upon the flushed capillaries where tissue metabolism takes place, thus arouses organic function and promotes cell activity and nutrition. This change in the vascular supply and in the nervous impetus relieves the dreary chilliness and muscular stiffness of thin, anemic cases, making the patients feel more alive and more comfortable. The direct action of xanthoxylum upon an

enervated nervous system, as well as its circulatory influence, make it a valued remedy in paralytic cases. Here the indications are to promote absorption of the clot by active vascular and lymphatic circulation, to stimulate affected nerve areas to their highest possibilities, to relieve the central organs of blood stasis, and to encourage metabolism by capillary activity. For these purposes xanthoxylum more nearly and safely meets the indications than any other single remedy. Unlike strychnia, it may here be given in the early stages and in suitable doses, continued while needed.

Scudder says that as a stimulant to all mucous membranes, xanthoxylum has no equal in the materia medica. In the aged the lining cells of various organs are no less in need of renewal than the visible epidermis which speaks of age. This drug acts as a tonic, stimulant, carminative, and alterative in the chronic catarrhal conditions of digestive organs, with their common symptoms of flatulency and distress. The regenerating effect of xanthoxylum upon the tissues and its oxidizing influence from increased capillary activity contrast it favorably with the degenerating and suboxidizing influence of alcohol.

Another stimulant and nerve tonic of great value for the elderly is *avena sativa*, which may also be regarded as a general nerve food. It acts as a sedative and anti-spasmodic in conditions of irritable atony, where depressing drugs are contraindicated and a direct stimulant might increase the irritability. Lloyd's specific *avena* may be given in from one to ten drop doses, every two or five hours, in hot water for a rapid effect, or in cold water for a more extended influence, as Ellingwood suggests. It thus serves as a quick stimulant, and as a continued tonic with which to upbuild tissues. *Avena* might be called the vegetable phosphorus from its primary action upon nerve tissue, which also results in an induced current of influence upon all nutritional processes. It favorably affects nerve tremors; paralytic conditions are benefited, not by absorption of the clot, so much as by bringing the damaged nerve cells up to their best functional possibilities. Dizziness from deficient cerebral circulation in the non-plethoric aged is a not uncommon symptom, and may result in serious falls. Moderate, long-continued doses of *avena*, three or four times a day, will often produce a more safe and satisfactory condition of things. *Avena* quickly relieves the dull, exhausted, and sickening occipital headaches, which probably depend upon a passive congestion at the base of the brain, and imperfect circulation in the nerve centers. This remedy is active in overcoming the feeling of faintness and "all gone" sensation at the pit of the stomach, which is only temporarily affected by the presence of food or stimulants which are a demand upon an already defective digestion. *Avena* combines well with minute doses of phosphorus and small doses of cactus where the pulse is small and the cardiac and

cerebral ganglia lack tone. It also acts well with xanthoxylum. Familiarity with this class of remedies provides the physician with more efficient resources for the senile conditions than the alcoholics and stimulants which briefly stimulate as the patient feels his whipped-up vitality going outward, without replacing this expenditure.

Lobelia seed, in minute doses of a fraction of a drop, is a valuable remedy in the "doughy" conditions which sometimes present a picture of atonic age. These heavy, slow-moving, oppressed, enfeebled cases seem to find in the minute stimulant dose of lobelia the specific influence to affect the circulation, which is the key to the deficient metabolism. It is reasonable to suppose that the cardiac muscle in these cases is no less doughy than the visible tissues.

Capsicum is a diffusible stimulant of general benefit in warming up the patient. It stimulates the gastric and intestinal glands, the appetite and digestion, thus promoting assimilation and nutrition, increasing peristalsis and aiding hemorrhoidal congestion.

Zingiberis — ginger — is another remedy especially suited to gastric or intestinal pain without inflammation. It acts as a diaphoretic and quiets the restless irritability of exhaustion. Mentha — peppermint — is also a diffusible stimulant for non-inflammatory cases, being carminative, antispasmodic, and stomachic.

Ammonium chloride is not only a good stimulant expectorant in bronchial catarrhs with relaxed mucous membranes, but it liquifies and aids in expelling the tenacious mucus in all catarrhs. It is indicated in chronic torpid hepatic inflammations, in catarrhal jaundice, and in gastrointestinal catarrh. Many elderly persons suffer from an accumulation of thickened, tenacious secretion in mucous glands, which induce coughing, or indigestion, or constipation, as well as an oppressed nervous system. These cases are not suitable for the pronounced action of K. I., or other powerful glandular alteratives, but are effectively relieved by moderate continued doses of ammonium chloride, sometimes with the addition of ammonium iodide.

POLYGONUM HYDROPIPER

BY J. M. FRENCH, M.D., MILFORD, MASS.

POLYGONUM HYDROPIPER, Linne (*Polygonum punctatum* of Elliott, *Polygonum hydropiperoides* of Michaux), common names smartweed, water-pepper, natural order polygonaceae, is an annual herb, somewhat glabrous, with a simple or branched stem of a reddish or greenish color,

growing from eight inches to two feet in height, having narrow, lanceolated leaves, and slender spikes of greenish-white flowers. It is found growing in nearly all parts of the United States, in ditches, low grounds, among rubbish, and about brooks and water courses, flowering in July, August, and September. There are at least thirty-eight species of polygonum which possess similar medicinal properties, but differ in potency. The entire plant, *polygonum hydropiper*, is employed in medicine. It has a biting, pungent, acrid taste, and imparts its virtues to both water and alcohol. Age lessens the activity of the plant, and heat impairs its medicinal qualities, hence it should be made into a tincture while fresh. Analysis of the plant shows it to contain tannin, ash, resin, wax, gum, sugar, etc. Rademaker asserts that the active principle consists of crystallizable polygonic acid. It disappears upon heating, but is contained in the alcoholic extract.

The most prominent use of smartweed is an emmenagogue. It was long ago highly praised for this purpose by the celebrated Dr. Eberle, who reported, after using it in about twenty cases of amenorrhœa, that he had not been as successful with any other remedy or method of treatment as with this. He found it to produce a feeling of warmth and a peculiar tingling through the system, slight aching pains in the hips and loins, and a sense of weight and tension within the pelvis, without ever purging or vomiting. He seldom found it necessary to continue the medicine more than six or seven days. The form used by him was a saturated tincture, and of this he gave a fluid dram three times a day.

Ellingwood recommends it highly in suppression of the menses from cold, giving thirty drops of the specific medicine in hot water every two hours. It may be begun two weeks before the time for the next appearance of the menses, if one period has passed, and given every four hours in cold water, until a day or two before the unexpected time, when it may again be given in hot water. Scudder considers it one of our best emmenagogues, especially when the arrest is from cold. Blair recommends it in doses of from 30 to 60 minims of the eclectic tincture, in amenorrhœa in young girls and suppression due to cold. Potter states that amenorrhœa from functional inactivity of the uterine system is remarkably benefited by this remedy in half dram doses of the fluidextract four times daily for a week before the expected period.

It is also diaphoretic, diuretic, and antispasmodic. Scudder regards it as one of our most certain stimulant diaphoretics. Gross recommends it in urinary suppression from cold, and in retention with lack of power in the bladder. Ellingwood says it acts promptly upon the skin and kidneys and seems to be to a certain extent antispasmodic, as in hystero-epilepsy, or epilepsy dependent upon suppression of the menses, it relieves the paroxysms and reduces the number of the attacks. He also finds it curative in

certain forms of flatulent colic, when the pains are sharp and lancinating with intermittent, severe griping. Blair advocates it in small doses (5 to 10 minims of the eclectic tincture) in flatulent colic, and considers it a carminative antispasmodic of secondary importance.

Felter and Lloyd say that the infusion, in cold water, has been found serviceable in gravel, colds and coughs, and in milk sickness, and mixed with wheat bran, in bowel complaints. The fresh leaves, bruised with the leaves of the mayweed, and moistened with the oil of turpentine, will speedily vesicate. The infusion, in cold water, forms an excellent local application in the sore mouth of nursing women, and mercurial sore mouth. The dose of the infusion is from one to four fluid ounces; of the saturated tincture, one to four fluid drams three or four times a day; and of specific polygonum, one to sixty drops.

In my father's family, smartweed was the remedy for colds. If any of us had been chilled, or "taken cold," a bowl of hot smartweed tea at bedtime was supposed to bring us around all right the next morning. And so far as my memory serves us, it did so quite effectually. My early ideas of medicinal drugs were derived very largely in such ways as this, and from such herbs as thoroughwort, smartweed, tansy, scullcap, and a few bitter roots, barks, and herbs. Our armamentarium was not a very extensive one, but the indications for each herb were pretty definitely laid out, at least in my mind, and for all minor purposes, they served their purpose.

ERYSIPELAS

BY E. H. MARSH, M.D., MANCHESTER CENTER, CONN.

ERYSIPELAS is an acute infectious and contagious disease, which is more likely to prevail in the spring and autumn. It is said to be caused by the streptococcus, which may enter the system through an abrasion, as the placental site, or a wound. It may be superficial or deep (phlegmonous) in its action.

Erysipelas may attack any part of the body, but seems to have an especial affinity for the face. When this part of the anatomy is affected the swelling may extend into the internal ear, though this has rarely been my experience. When such a condition does occur the patient's condition becomes very serious.

Erysipelas is more prone to attack those persons who are past middle life with an amount of vitality that is considerably below par, brought on by a variety of excesses.

There is usually a chill at the onset with a temperature quickly rising to from 100 to 105 degrees F. I usually find the larger glands, as the

liver and kidneys, in a state of torpidity and congestion. Such being the case, the first indication is to relieve the condition of these organs. Next we should endeavor to free the system of the accumulations of nitrogenized animal tissues. In such conditions appreciable doses of acetate of potash—if not contraindicated — is a remedy *par excellence*.

For the full bounding pulse, that is almost always present, one drop doses of Spec. Med. Veratrum Vir. should be given every hour or two as needed. With bright redness of the parts there is nothing that equals the local application of Spec. Med. Veratrum Vir. One and one half drachms of this remedy should be added to one pint of aqua pura. This may be applied to the parts by means of cotton or linen cloths and keeping them wet constantly. Any other conditions are to be met by the proper remedies.

PERTUSSIS

BY W. C. ABBOTT, M.D., CHICAGO, ILL.

To subdue local congestion and abort incipient hyperemia, give amorphous aconitine $\frac{1}{2}$ mgrm. every half hour till the pulse and temperature approximate normal and the skin is cool or moist, then often enough to sustain this effect.

Copper arsenits gr. 1-1000 every hour may reduce congestion and act as a local antiseptic in the pharynx.

Quinine, in full doses, frequently aborts the malady; give twelve grains in twenty-four hours to a child three years of age.

The dyspnea is relieved in the worst cases by glonoin and hyoscyamine gr. 1-250 each to a child in the second year, every hour till effect.

Pilocarpine a milligram every five minutes till sweating begins has the repute of aborting many attacks very early or very late in disease.

Caulophyllin a centigram every quarter hour in hot water has been recommended but not sufficiently tried. Push to full effect if used at all.

Helenin a milligram every hour has been most highly urged by those who have persisted in pushing the remedy; otherwise to not try it.

The only way to properly test these little known plant remedies is to give small doses in hot water very often till something happens to show effect.

Cocaine has been sprayed over the throat to assuage the violent paroxysms, but there are better remedies in hyoscyamine and glonoin.

In the early stages secretion is increased by emetine, a milligram every half hour, which also wrings out the liver.

If aconitine cannot be used early for feeble children, give anemonin a granule, $\frac{1}{2}$ mgrm., every hour, in hot solution till effect.

Atropine is specially useful for teething children, in the spasmodic stage and to restrain free secretion. Give to effect.

Atropine and hyoscyamine should be given in very small doses until the child speaks of dry mouth, or the face reddens, or pupils dilate.

It is necessary to secure full atropine effect and to sustain it, to obtain its unequaled curative action.

Cicutine hydrobromate is useful to allay the motor excitement and mental unrest that may be resultant in convulsions otherwise.

To a child two years old give cicutine hydrobromate $\frac{1}{2}$ mgrm. every hour till the beneficial effect has been fully demonstrated.

Undue excitement, convulsions or dyspnea, may require a hypodermic of morphine or codeine suited to the age and condition.

The spasmodic element has been restrained by bromides, but solanine is in every way preferable for these little patients.

Hearty children with fever and hard, dry coughs may take lobelin 1 mgrm. every half hour till slight nausea commences.

If headache accompany the spasmodic stage give the child gelseminine gr. 1-250 every hour till fever falls or eyelids droop.

The paroxysms lessen in severity and number under caffeine valerate, gram. .01 every hour, regulating by effect on pulse tension.

Camphor monobromide is useful throughout, in doses of gram. .01 every half to one hour; with or without equal doses of nickel bromide.

Resorcin has been advised,— a good antipyretic, antiseptic astringent — but there are better remedies as a rule for every case.

Some cases recover at once when the sick room and clothing have been well fumigated with sulphur; patient getting also an antiseptic bath.

The chief remedy is calx sulphurata, one to three centigrams every half hour, till the child smells like an ancient and unlucky egg.

Complete saturation with calx sulphurata will check any case, from the incubative stage to the habit cough following the attack.

Children saturated with calx sulphurata during incubation may be exposed to subsequent epidemics with perfect impunity.

Whooping-cough is probably the most infective of all known maladies, and affords the easiest illustration of calx sulphurata powers.

Never forget the irritation due to autotoxemia, and keep the child's bowels clear with a daily morning dose of saline laxative.

Other remedies do not much matter if we have plenty of calx sulphurata and hyoscyamine, and know how to use them.

When one has mastered the art of giving single remedies in hot water, small doses repeated quickly to effect, he has become a new man and a better doctor.

Children take the little-dose granules readily, and a lot of misery is avoided by considering the sick creature's feelings.

The best remedy for inhalation is abundance of pure, fresh air; all beyond this is vanity and vexation of spirit.

PHYSICAL THERAPY.

PROGRESS IN ELECTRO AND RADIO THERAPY

HERBERT MCINTOSH, A.M., M.D., WARREN CHAMBERS, BOSTON, MASS.

THREE meetings of more than usual interest for those who are engaged in physio-therapy occurred last year at widely separated points. Of these the first in point of time took place at Sheffield, England, in the latter part of July, where the Congress of the British Medical Association held its annual meeting, of which an important section is devoted to researches in the field of medical electricity.

The second took place at Clermont-Ferrand, France, in the first week of August, where the Congr s de l'Association Fran aise pour l'Avancement des Sciences held its annual meeting, the thirteenth section of which is devoted exclusively to researches into the phenomena of electricity, the X-ray, and radio-active bodies in relation to their therapeutic applications.

The third was held in the third week of September, in the Electrical Engineers' Building, West 39th Street, New York City, being the eighteenth annual meeting of the American Electro-Therapeutic Association, the national society of electro-therapeutists in the United States.

A cursory review of the list of papers presented at the meeting held at Clermont-Ferrand as reported in the Archives d'Electricit  M dicale reveals the immense interest which our French brethren are manifesting in the important questions of electrical current measurement, diagnosis, and treatment, in the study of X-ray phenomena, the improvement of X-ray apparatus and researches into the therapeutic effects derived from radium.

It is to this association that Professor d'Arsonval, whose study of the high-frequency current in particular has given him international renown, has contributed the brilliant results of his careful researches.

Of this association Henri Becquerel, whose researches following the discovery of the R ntgen ray made possible the isolation of radium by M. and Mme. Curie, and whose death is just reported, was also a distinguished member.

It may be said in passing that the list of collaborateurs of the Archives d'Electricit  M dicale, who are also to a large extent the active workers in this association, comprise men of the highest rank in scholarship and scientific achievement, whose names, like those of S. Leduc, Professor of Physics in the School of Medicine at Nantes, or Dr. H. Lewis-Jones, of Bartholomew's Hospital, London, are familiar to all students of medical electricity.

A very gratifying feature of the work of the French electro-therapists is the firm foundation which they have laid in the physics of the currents which they discuss, without which of course there can be no intelligent use of medical electricity. The discredit into which electrical therapeutics had fallen in this country and elsewhere until recently has been due to the empiricism which characterized the application of electricity to the treatment of disease. The French can truly say, "*Nous avons changé tout cela*," and other nations have been quick to follow their example. It is quite within bounds to say that the interest in the problem of treating disease by these newer but immensely powerful forces has gained enormously within the past few years, more especially as the currents of high frequency, the X-ray, radium and light have by their spectacular achievements exerted a compulsive effect upon the medical mind.

In looking over the titles of papers submitted one notices a paper by M. Leduc, on the treatment of paralysis and atrophies by intermittent currents, and another by the same author, on the division of ions, at the level or in the vicinity of the electrodes employed in electro-therapy; an article on the technique of the method of treating cancer by so-called "fulguration," by Dr. de Keating-Hart; a very careful paper by M. Regaud on the effects produced by the X-ray on the sexual apparatus of animals and men; an article by MM. Bergonie and E. Speder upon instantaneous radiography; an interesting study of the quartz lamp of Kromayer, by M. Th. Nogier; a comparison, by M. Guilleminot, of the effects of the X-ray and the radium rays upon the vegetal cell; an article by M. Leduc on electrocution, in which he emphatically approves of electricity as a painless method of inflicting capital punishment, and another on the treatment of angiomas by electricity and compression, by M. Guilloz; a paper by MM. Chozet and Bassal upon the action of the X-rays upon the evolution of the mammal during gestation; and a paper upon the measurement of currents of high frequency in medical electricity by MM. Bergonie and Turpain.

I have endeavored by selecting a paper here and there in the list of papers submitted to indicate the variety and character of work which is done by students of physio-therapy among the French. The papers when printed *in extenso* deserve a more extended notice. A large number of reports of cases were submitted, testifying to the effectiveness of physical methods of treatment.

The electrical section of the British Medical Association met at Sheffield in the latter part of July. The President of the Association, Dr. E. Reginald Morton, opened the meeting with a short address upon the subject of tele-radiography, the chief advantage of which is that inasmuch as the skiagraph is taken at a considerable distance from the tube there is absence of distortion, owing to the fact that the photographic rays affecting the plate are practically parallel.

Dr. C. Lester Leonard, of Philadelphia, presented a paper describing his method of making instantaneous exposures, which affords a means of detecting enlarged bronchial glands, and areas of infiltration about the roots of the lungs.

Dr. H. Lewis-Jones, author of *Medical Electricity*, and medical officer in charge of the Electrical Department in St. Bartholomew's Hospital, discussed at length the comparative value of coils with hammer interrupter and those in which the interruption of the current is affected by means of a mechanical apparatus after the pattern of Leduc's commutator. It is very desirable in electrical testing and in therapeutic applications to obtain a current which produces the maximum of muscular stimulation with the minimum of sensory irritation. Now it is found that the production of pain in induction coils is intimately connected with the proportion which the length of the curve bears to the period of rest. By the use of the Leduc commutator, it is possible so to proportion the length of wave to the period of rest as largely to eliminate pain. Thus, where the interruptions of the current are about one hundred per second and the waves last one thousandth of a second, giving a period of rest of nine thousandths of a second, disagreeable sensory effects are eliminated and suitable muscular stimulations obtained.

The use of bismuth in the diagnosis of diseases of the œsophagus and stomach in connection with radiography elicited general discussion.

Mr. J. Hall Edwards, who had undergone an amputation of the left arm as a result of conditions originating from X-ray exposure, and later a similar amputation of a part of his right hand, was present and read a paper upon X-ray dermatitis.

Dr. Deane Butcher presented an interesting paper on radium therapy. He maintained that radium possesses a remarkable power over pruritus, and that the Gamma rays are particularly valuable in the treatment of indurated patches of eczema. Rodent ulcer yields to radium, which has this important advantage that its activities can be readily localized. When X-ray irradiation fails to produce desired effects, radium may carry on the work to a happy conclusion. Dr. Butcher believes that radium emanations should prove an excellent treatment for the initial lesion. There was some difference of opinion as to the propriety of using radium in the treatment of port-wine marks. Much more of interest was presented at these meetings, but the foregoing is offered as an illustration of the character of work submitted to the association.

At the eighteenth annual meeting of the American Electro-Therapeutic Association about thirty papers on a great variety of subjects were submitted. Viewed as a whole they do not represent the amount of laboratory work which is evidenced by the papers submitted by our French confreres. The results, however, testify to close study of clinical effects

produced by physical treatment. These are most valuable and useful, but the more general study of these highly useful therapeutic agencies on this side of the Atlantic by laboratory methods is greatly to be desired.

Among the papers we note one by M. K. Kassabian, M.D., of Philadelphia, author of *The Röntgen Rays and Electro-Therapeutics*, and Director of the Röntgen Ray Laboratory of the Philadelphia Hospital, on Röntgen ray diagnosis of diseases of bones and joints; a paper on X-ray in dental examinations by Sinclair Tousey, M.D., New York, the pioneer in this country in X-ray dental work; an excellent paper by William Benham Snow, M.D., Editor of "*Advanced Therapeutics*," on the treatment of arterio-sclerosis and hypertension. Here the results obtained were carefully displayed and confirmed by the patient use of the sphygmomanometer.

T. D. Crothers, M.D., of Hartford, presented a paper on new possibilities of the electric light bath, which excited much interest, and Dr. C. R. Dickson, of Toronto, Canada, a paper entitled, "Observations upon the Employment of Caldwell Tubes in Surface Work."

Dr. Geo. Betton Massey, of Philadelphia, a voluminous writer, whose pioneer work in the field of electro-surgery is widely known, was present, and read a report as chairman of the committee on electro-surgery.

Dr. Margaret Cleaves, of New York, author of "*Light Energy*," a leading authority upon the therapeutic application of light, and a woman of high attainments, was present and read her report as chairman of the committee on constant current.

Dr. William James Morton, who, after studying with Charcot, brought to this country, in 1881, the first static machines ever used on this side of the Atlantic, and who discovered the static induced current and the "Morton" wave current which bears his name, and is regarded as the most useful current obtained from the static machine, was not present. He is now giving his attention chiefly to the study of radium. It may be stated that by general consent of electro-therapeutists on both sides of the water, his static induced current was the first high frequency current employed for therapeutic purposes.

The reports of the various committees on induction coils, meters, phoresis, current classification, static electricity, constant current, electro-chemical surgery, phototherapy, radiotherapy, radiography, high frequency, mechanical vibration, thermo-therapy, exercise therapy, and reactions were designed to bring the achievements in these various fields down to the present time, and thus to furnish a new point of departure for future reports.

The newly elected president, Dr. Edward Titus, of New York, presented some very interesting results from the study of the radioscope, with conclusions as to the amount of pressure exerted upon the surface of the earth by light.

The display of the manufacturers of electrical apparatus was excellent and highly instructive.

Dr. Dawson Turner in "Some Reflections Based upon the Work done in the Electrical Department of the Royal Infirmary, Edinburgh," reports some excellent results obtained in the treatment of spinal sclerosis by chlorine phoresis. The affected area is covered with ten layers of lint in a weak solution of NaCl. Over this is placed a metal electrode attached to the negative pole. The feet are placed in a bath attached to the other pole. A strong current is passed for half an hour. It would be interesting to know how many milliamperes are employed, but the author does not state. It is assumed that the chlorine ion, being a kation, will traverse the spinal cord, and have a resolvent action upon sclerotic tissue.

When you make a mistake, don't look back at it long. Take the reason of the thing into your own mind, and then look forward. Mistakes are lessons of wisdom. . . . The past cannot be changed. The future is yet in your power.— *Hugh White*

Take joy home,
And make a place in thy great heart for her
And give her time to grow, and cherish her.
Then will she come, and oft will sing to thee
When thou art working in the furrows; aye
Or weeding in the sacred hour of dawn.
It is a comely fashion to be glad;
Joy is in the grace we say to God.

—*Jean Ingelow*

You have a disagreeable duty to do at twelve o'clock. Do not blacken nine and ten and all between with the color of twelve. Do the work of each, and reap your reward in peace. So when the dreaded moment in the future becomes the present you shall meet it walking in the light, and that light shall overcome its darkness.— *George MacDonald*

THERAPEUTIC NUGGETS

La Grippe.— The treatment of this insidious affection may be commenced by a hot bath, just as hot as the patient can bear, in which a cupful of salt has been dissolved. Spec. Med. Bryonia, gtts. v to x in Aqua $\mathfrak{I}v$, given in $\mathfrak{I}i$ doses every half hour or every hour, will find a very important place in a large majority of cases to relieve the pains in the pleura. Hyoscyamus — preferably the Spec. Med. — in small doses will be found very efficacious in relieving the intense frontal headache which so frequently accompanies this condition.

Tinct. Capsicum.— Whoever fails to use this drug frequently is neglecting a remedy that will do him much valuable service. It is a quick diffusible stimulant and can be used without fear of harming your patient wherever such action is needed. It will give the quickest results if administered in *hot water*, with a little sugar. The usual dose is from two to five drops in half a cup of hot water, and this dose can be repeated every half hour until the desired effect is produced.

Hot Flashes.— This is one of the almost constant disagreeable conditions that are met with during the establishment of the menopause. When this condition is sufficiently pronounced to give much trouble it may be relieved in a very great degree by prescribing small doses of pulverized camphor. The usual dose administered is from one fourth to one grain three or four times a day.

Deep Red Tongue.— Whenever your patient presents himself with a tongue of this character you may depend upon hydrochloric acid as an agent to give relief no matter with what disease the patient may be suffering. It should be given by adding a sufficient quantity to a glass of cold water to make it pleasantly sour. Of this solution allow the patient to drink as he pleases until the tongue becomes its natural color. Frequently cider that has aged a little will be found to act better than the hydrochloric acid. This may be used in the same manner. Should the redness of the tongue be confined to the sides and tip with an elongation of its shape hydrocyanic acid must be the remedy. This agent is to be given only in small doses. Add gtts. III to v to $\mathfrak{I}v$ of Aqua and of this solution give $\mathfrak{I}i$ doses every one to three hours.

Chronic Diarrhea.— Many cases of this disagreeable affection that have resisted all other forms of treatment will almost invariably yield to proper doses of the *Mangifera Ind.* My experience has been wholly with the Spec. Med. and I add from one to two drachms of this preparation to four ounces of water and direct the patient to take it in teaspoonful doses every one or two hours.

DEPARTMENT OF DIETETICS

SUGAR IN ITS RELATION TO INFANT FEEDING

By J. A. DENKINGER, M.D., BOSTON, MASS.

ONE of the axioms of scientific infant feeding which cannot be impressed too strongly on the student of the subject, is that digestive and other nutritive disturbances may result from an excess of any of the food elements comprising the infant's diet, in other words, we may have proteid indigestion, fat indigestion, and sugar indigestion due to an excess of any of these foodstuffs.*

Until a few years ago almost every case of "indigestion" in an artificially fed infant was attributed to the proteids of cow's milk, with the result that the advocates of the almost countless methods of artificial feeding as well as the manufacturers of the no less numerous artificial foods for infants, devoted their attention chiefly to the proteids, devising ways and means to render the proteids of cow's milk more digestible and assimilable. Hand in hand with the modification or adaptation of the proteids of cow's milk to the infant's digestive capacity, went an increase of the fat content by the addition of cream, for did not the great pediatricist Biedert, one of the early fathers of cream mixtures, and his followers prove (?) that the addition of cream rendered the casein of milk more digestible? In this country the principle of cream mixtures was advocated by Meigs, Rotch, Winters, and others, despite the frequent warnings and protests of Jacobi, the one consistent opponent of high fat-feeding for a generation or more. A few years ago, following the brilliant and epoch-making experiments of Pawlow on digestion, Czerny and Keller, Finkelstein and others, demonstrated that the fat of cow's milk is responsible for a greater share of digestive and other nutritive disturbances than the proteids of cow's milk. That such is actually the case has now been amply demonstrated by careful observers in all parts of the world, who found that the most difficult feeding cases frequently thrive on comparatively high proteids, often on the proteids of whole milk, provided the fats are kept low. This is well illustrated in the case of both skim milk and buttermilk.

*The inorganic or mineral constituents of our food are equally important to normal metabolism, and excess or deficiency of the mineral nutrients have a full share in the etiology of nutritive disturbances. Unfortunately our knowledge of the parts played by these constituents of our diet is still too meager to enable us to correct all the injurious effects resulting from their excess or deficiency, or the changes brought about by heat and other forms of manipulation disturbing their organic combinations.

This does not mean that high proteids and low fats should be the rule in the artificial feeding of infants, as there is ample evidence that an excess of proteids or certain forms of proteids are responsible for digestive disturbances as well as high fats. What it does show is that high fats, or to be more exact, that an excess of fat constitutes a very frequent cause of more or less serious digestive disturbances and abnormal metabolism, and must be reckoned with, especially in the so-called difficult feeding cases. That the same principle is applicable to sugar, as well as to fat and proteid, that an excess of sugar may be responsible for serious digestive and other nutritive disturbances, that infants and children differ in their sugar capacity as well as in their proteid and fat capacity, and that the question of the form of sugar used in the artificial feeding of infants is by no means one of indifference is the object of this paper.

Sugar indigestion is probably less frequent than indigestion from an excess of fat and proteids. For one thing, the digestion and assimilation of fat and proteids makes much greater demands on metabolic processes than carbohydrates, which latter are more easily as well as more completely digested and assimilated. Finkelstein found that infants troubled with impaired fat digestion and assimilation have, as a rule, excellent carbohydrate tolerance. This is shown by the immediate improvement of infants suffering from fat indigestion, when a diet low in fat but high in carbohydrates, especially maltose, is substituted for the high fat diet. Finkelstein also found that in cases of infants suffering from impairment of nutrition (*Nährschaden*) the addition of fat to their diet impaired their carbohydrate metabolism, even a small increase in the fat content of their diet being followed by a reduction of the sugar-digesting and assimilating capacity below the normal (decrease of sugar tolerance).

Before proceeding to a consideration of the symptomatology resulting from an excess of sugar and the indications for special sugars in the artificial feeding of infants, it will be well to state some of the most important principles underlying carbohydrate digestion and assimilation. The chief function of carbohydrates is to supply heat and energy, they are not true tissue builders, they are, however partly converted into fat and thus increase the body weight. Like the fats, the carbohydrates are proteid spacers (they reduce proteid destruction and inhibit nitrogenous putrefaction)* in fact most authorities contend that carbohydrates are superior to fats as proteid spacers. The carbohydrates are also of much value as fat spacers.

THE ASSIMILATION LIMIT OF SUGAR

This is a term used to express the maximum quantity of sugar that

*On account of their slower absorption, the starchy carbohydrates check nitrogenous putrefaction even more effectively than sugar.

can be ingested within twenty-four hours without causing the appearance of sugar in the urine. This limit varies with different sugars. It is higher for the monosaccharides* than the disaccharides. It is highest for dextrose (200-250 grams), somewhat less (200) for levulose,† and still less for galactose; for maltose and cane sugar it is about 150-200 grams, and for lactose only 120 grams.

Worm-Müller found lactose in the urine after giving as low as 50 grams. While it is believed that lactose is better assimilated in infants than in adults, possibly on account of the greater quantity of lactase, the lactose-splitting ferment found in the intestine, there is no question that lactose has the lowest assimilation limit of any sugar, and will therefore produce alimentary glycosuria more quickly than any other sugar. This property alone makes lactose under certain conditions less desirable as an addition in the modification of milk in the artificial feeding of infants, as will be shown later.

I am not familiar with many extensive experiments to determine the assimilation limit of sugar in the case of infants, but the probabilities are that it does not differ very materially from the assimilation limit of sugar as observed in adults. Grosz-Epstein reported that the assimilation limit in infants averages 12 grams of lactose per 1 kg. of body weight, beyond which the sugar is eliminated in the urine. This applies to healthy infants; infants with weak or impaired digestion tolerate much less. Keller found that in the case of infants the assimilation limit is higher for maltose than any other sugar; this applied to infants suffering from gastro-intestinal troubles as well as to normal infants. Wilcox, who studied the sugar capacity of a large number of infants with glucose, found that, considering their weight, infants and children from one to ten years have slightly more glucose capacity than adults and concludes that there is good ground for the argument that the child is better equipped for sugar digestion than the adult.

THE PRINCIPLE OF ISODYNAMICS APPLIED TO INFANT FEEDING

On account of the high sugar capacity of normal infants, and sugar being a much cheaper food element than fat, besides being more digestible and assimilable, attempts have been made to utilize in the artificial feeding of infants the principle of isodynamics, according to which carbohydrates

*The assimilation limit of starch is very much higher than for any of the sugars, according to some authorities, fully five hundred grains for twenty-four hours, hence very large quantities of starch can be ingested without causing the appearance of sugar (dextrose) in the urine. This is readily explained by the fact that absorption and assimilation are able to keep up with the relatively slow saccharification taking place in the process of starch digestion.

†Von Noorden found levulose badly borne in the case of infants, a relatively small quantity causing alimentary glycosuria.

can replace fats in the ratio of their combustion equivalent (22 or 24 parts of sugar equaling 10 parts of fat in point of energy). It has been found that a *reasonable* amount of substitution of sugar for fat to make up for relative fat deficiency in the diet of both infants and adults is not at all irrational in theory, and according to my observation, is successful in practice. One of the eminent advocates of this method is Professor Soxhlet. The well-known Heubner-Hoffmann mixture, is based on the same principle, which is also utilized in the case of condensed milk and a number of artificial foods for infants, in which the relatively low fat content is compensated by the addition of carbohydrates, usually in the form of sugar, sometimes starch and sugar.

Unfortunately, infants differ materially in their sugar-digesting capacity. In the case of infants, with poor sugar capacity, the quantity of sugar necessary to make up for a marked deficiency of fat is almost certain to cause dyspepsia and abnormal fermentation with flatulence and the production of irritating acids resulting in acid, diarrhoeal stools, necessitating a discontinuance of high sugar feeding. On the other hand, very many infants have high sugar capacity, and thrive remarkably well on high sugar percentages. High sugar percentages are of special service in cases of fat indigestion (fat incapacity) and in marasmus, in which condition, fats are usually very poorly utilized and call for relatively high sugar, preferably maltose.

Replacing fat entirely with sugar or starch and sugar, is of course out of the question, as without a certain amount of actual fat in the diet abnormal states of metabolism are certain to make their appearance.

CARBOHYDRATE ABSORPTION

While experiments have shown that the absorption of maltose, dextrose, and even dextrin from the stomach is possible, physiologists are now generally agreed that but little sugar is absorbed from the stomach and that the absorption of practically all carbohydrates occurs from the small intestine and in the form of monosaccharides (simple sugars) chiefly dextrose. The monosaccharides dextrose, levulose, and galactose are absorbed as such, but the disaccharides or double sugars (lactose, maltose, and cane sugar) and the polysaccharides (starch and dextrin) must be converted into monosaccharides before assimilation can take place. Lactose is more slowly absorbed than cane sugar and maltose. The sugars ready for absorption are taken up by the portal capillaries and carried by the portal vein to the liver, where they are converted into and stored as glycogen, ready to be drawn upon and to be reconverted into dextrose and fed to the blood and other tissues as required. The sugar entering the blood stream and other tissues is utilized in the

liberation of energy and force and the production of heat and the waste is eliminated chiefly by the lungs, in the form of carbon dioxide and water. When a greater amount of sugar is absorbed than can be stored in the liver and in the muscles in the form of glycogen, or utilized by the blood, it is converted into and stored as fat.

CARBOHYDRATE FERMENTATION

Not all of the carbohydrate material ingested is changed into dextrose or its isomers and absorbed as such. A certain amount of it undergoes acid fermentation by the action of bacteria, forming acetic, lactic, butyric, and succinic acids, as well as carbon dioxide, alcohol, and hydrogen gas. To a certain extent fermentation takes place under perfectly normal condition, but under abnormal conditions, such as excess of carbohydrate intake, especially of sugar or poor absorption of same and in case of food-stagnation, the process of fermentation becomes readily abnormal, giving rise to more or less serious gastro-intestinal symptoms, including the excessive productions of irritating organic acids and the liberation of gases, chiefly carbon dioxide and hydrogen gas, which distend the stomach and bowels, excite peristalsis, and result in very acid, irritating, diarrhoeal stools, and if long continued, in serious inflammatory conditions. Another untoward effect of abnormal fermentation is that the sugar undergoing abnormal fermentation is unavailable for nutrition, and is lost to the organism (loss of nutritive potential — Herter).

In the literature on infant feeding, reference is frequently made to fermentable sugars. As a matter of fact, all sugars are fermentable sugars, either directly or indirectly; it has, however, been found that sugars differ more or less in the readiness with which they undergo the different forms of fermentation, viz: acetic fermentation, lactic acid fermentation, butyric fermentation, and alcoholic fermentation. To illustrate: Lactose is much more liable to lactic acid fermentation than maltose; maltose, on the other hand, undergoes butyric fermentation more readily than lactose.

SUGAR INDIGESTION AND SUGAR INCAPACITY IN INFANTS

The sugar-digesting capacity of normal infants being rather high, most authorities agree that digestive and other nutritive disturbances due to an excess of sugar are less frequent than disturbances due to an excess of fat or proteids, and it is only of late years that such authorities as Monti (Vienna), Finkelstein (Berlin), and in this country, Kerley (New York), have called special attention to the untoward effects of an excess of sugar in the artificial feeding of infants.

The proportion of sugar in the food of the artificially fed infant is

placed by most authorities at from five to seven per cent. Adding one ounce of sugar to a twenty-ounce feeding mixture adds five per cent of sugar to that mixture, and while it is quite true that infants differ in "sugar capacity," or sugar tolerance, as they do in fat tolerance or proteid tolerance, there is no question that in the case of a large proportion of infants sugar materially in excess of seven per cent tends to increase the danger of abnormal fermentation. According to Holt, it is rarely necessary to have the sugar less than five or over seven per cent. During the first two months of the infant's life, Monti considers a sugar percentage of over six per cent, and after that anything over seven per cent as abnormal. Ruhräh cautions never to exceed seven per cent, "lest it give rise to symptoms of excessive sugar feeding." In the milk mixtures recommended by Soxhlet and extensively used by Heubner, Fischl, and others, in which the deficiency of fat of diluted milk is made up by the addition of lactose on the basis of the law of isodynamics, the sugar percentages recommended by Biedert, Monti, Holt, Rotch, and others are very materially exceeded, despite of which, the reports of the results of feeding by this method are in the main satisfactory, both in the case of sick and normal infants, "Heubner feeding thousands of the most miserable infants on these mixtures with the greatest success." Diarrhoea was, however, as might well be expected, rather frequent.

The only reports of high sugar feeding in this country that I have been able to find are given by Kerley. He found that of milk mixtures containing 10 per cent of sugar given to ten infants under one year of age selected for high sugar feeding, every case showed glycosuria within twenty-four hours of the high sugar administration.

FINKELSTEIN ON THE TOXIC PROPERTIES OF SUGAR IN THE ARTIFICIAL FEEDING OF INFANTS

Finkelstein in a series of articles on "Alimentary Intoxication" (*Jahrbuch für Kinderheilkunde*, 1908) includes sugar, as well as fat and starch amongst the food factors liable to cause nutritive disturbances (*Nährschaden*) when given beyond the limits of tolerance, fat occupying the first place, starch (*Mehl*) coming next, and sugar occupying the third place. Finkelstein speaks of these disturbances of nutrition or impairments of nutrition as fat dyspepsia, starch (*Mehl*) dyspepsia, and sugar dyspepsia. As stated before, Finkelstein found that the addition of fat to the diet of infants with impaired nutrition (*Nährschaden*) reduced the sugar tolerance materially (impairment of carbohydrate metabolism).

As a recognition and proper appreciation of the symptoms peculiar to excess of sugar (sugar dyspepsia), in the diet of artificially fed infants is of great importance as a guide to intelligent and effective treatment, a review of the principal clinical manifestations will prove helpful.

THE MEDICAL ROUND TABLE

DELIRIUM TREMENS

EDITOR JOURNAL OF THERAPEUTICS AND DIETETICS:

I have just read Dr. Crothers's fine paper on "Treatment of Delirium Tremens," in the January issue of your excellent journal. I wish to congratulate you on securing this splendid article. I can verify every word that Dr. Crothers has said, from my own experience. He demolishes nearly every method of treatment which has been devised, and shows that they were founded upon mistaken notions of the pathology of this disease. This especially applies to the use of narcotics. The patient as a rule begs frantically for something to put him to sleep. He does not need sleep; it is not sleep he wants, but unconsciousness.

In my experience I have used every narcotic method of treating delirium tremens, from opium down, and my results have steadily improved, as I have substituted milder narcotics for the more powerful. Since I have laid aside all agents of this sort I have not had a death.

The first indication in the treatment of this malady is to stop further ingestion of the poisonous alcohol. The second is to eliminate this and other toxins from the body, and the third is to support the enfeebled functions. Abundant experience in public institutions has proved, as Dr. Crothers says, that no harm, but only good, follows the absolute immediate stoppage of all spiritous liquors.

The more intelligent of the laity are beginning to understand this; and curiously enough, not all the arguments and demonstrations given to the subject have proved nearly so effectual in inducing this change of sentiment as a ridiculous joke, which became current a few years ago, about a patient who attempted to "taper off, getting the taper end the biggest." This has really proved the most powerful agency in reversing public sentiment as to this affection.

In the work of eliminating the poisons, I have derived great benefit from two suggestions, both originally put forward by Dr. Waugh, of Chicago. One of these is the use of emetine, the cholagog, but not the emetic principle of ipecacuanha. I use the pure alkaloid, not the mixture, in doses of 1-12 grain. This I put in a capsule, with ten grains of salol, to hinder absorption from the stomach as much as possible and get the

remedy into the intestines without provoking vomiting. For pure emetine in full doses is emetic, though not nearly so strongly so as the other alkaloid in ipecacuanha, known as cephaeline. It is an object to get as much emetine into the patient as he can bear without vomiting, but it is not common to find a patient who can retain more than 1-12 of a grain. After taking this the patient must lie as absolutely quiet as possible for half an hour; at the end of which time he will almost always be found to be asleep. This sleep generally lasts about eight hours, when the patient awakes, has a full movement from the bowels, and is ready for his breakfast and even for work. No other remedy or method of treatment I have ever employed worked such a marvelous change in the condition of the patient, mentally and physically, as does this emetine. The craving for liquor is gone, there is no next-morning headache, no tremor, the patient is himself again; although weak, not nearly so weak as after taking the chloral and bromide still adhered to by physicians who are not altogether up to date. He is ready to take a breakfast of easily digested, nutritious food, with relish, and good digestion follows the meal.

It is then time to use our supporting treatment, and Dr. Crothers's suggestion of a solution of quassia is excellent. Most of the secret methods include hydrastis as the bitter tonic relied upon to remove the desire for alcohol. In fact a good many believe that the only gold employed in the Keeley method is golden seal.

The other suggestion which I credit to Dr. Waugh is one which seems to be little known to the profession, or it would be mentioned more frequently. It is the half pint enema of cold, saturated solution of table salt. If this is thrown into the rectum or colon, exosmosis from the blood to the bowel is powerfully excited. Great quantities of serum transude into the bowel, relieving the blood of enormous quantities of toxins, as well as thoroughly emptying the colon itself of any accumulations which it may contain, and it usually contains plenty. I have often repeated this enema twice in twenty-four hours for several days, when the toxemia was exceedingly marked. It is as effective and almost as prompt as venesection. The patient at the same time should drink plenty of water, and the result is a blood-washing of the utmost value. These are directly in line with Dr. Crothers's mode of treatment. I offer them simply as the most efficacious means I have tested for accomplishing the object he expresses so admirably.

ROBERT MCMASTER, M.D.

ECHINACEA

EDITOR JOURNAL OF THERAPEUTICS AND DIETETICS:

Under the heading "Drug Therapy" — "Double Sulphide and Echinacea," I see Dr. J. A. Burnett does an injustice to a valuable remedy,

and as usual it seems that the pactor has lost confidence through expecting too much of the remedy and being disappointed.

It seems to be a failing among the rank and file of eclectic physicians to take some valuable remedy and laud and overlaud it *ad nauseum*, without rhyme or reason, for pathologic conditions wholly without its range of action.

Echinacea, in my opinion, is not overestimated if confined to its particular field, but certainly is overestimated by many physicians outside that field.

If echinacea has any antiseptic effect internally or externally, other than that derived from the alcoholic menstruum, then I have failed to observe it. I take issue with Dr. Burnett as to calendula's superiority as a local dressing in pus-discharging wounds. If antiseptics are necessary—and they usually are—I use corrosive sublimate in weak solution; but I nearly always use a dilution of echinacea or echifolta in connection with it, because experience has taught me that such wounds heal faster and the surrounding tissues have a better resisting power in the cases where I use one or the other in connection than where I use the antiseptic treatment alone.

That echinacea is a marked tonic stimulant to the lymphatic glands can be easily demonstrated by its administration, alone, in those cases of "boils" when the condition is general and not local.

It is as a glandular stimulant that echinacea should be used, both internally and externally, and not for any direct antiseptic effect.

Echinacea has suffered as much in reputation from its "fool friends" as from anything else—not from any lack of potency in its individual line of action.

Calendula has proven to be a pretty weak sister in my hands, probably because I have never studied it enough to find its field of action.

H. C. SMITH, M.D.,
Ainsworth, Neb.

PLANTAGO MAJOR

EDITOR JOURNAL OF THERAPEUTICS AND DIETETICS:

I have been endeavoring to learn something about plantago major for some time.

I use it with advantage, seemingly, in periosteal atony of some kind—it may be hypertrophy, however, for aught I know,—again it may be the nerves governing this class of membranes, or the fluids osmosing through it.

What does J. A. Burnett, M.D., or any one else know regarding this drug?

It seems to me that it works in harmony with phytolacca. Ellingwood speaks of several physicians having great faith in this remedy, but he does not point out its real tissue activity with any definiteness.

SAMUEL B. PRATT, M.D.,
Boston, Mass.

MORE ABOUT GOLDEN SEAL

EDITOR JOURNAL OF THERAPEUTICS AND DIETETICS:

I have been reading Hoag's little book, "Golden Seal as a Money Crop," and while much of it is good, I cannot endorse what he says about the cost of preparing a place suitable for the cultivation of hydrastis. I have an ideal place for golden seal, made by nature, soil fine, and a natural shade. Last July I found one hundred and fifty plants and transplanted them, and they are now doing finely.

J. HOOVER, M.D.,
Grand Valley, Pa.

EDITOR JOURNAL OF THERAPEUTICS AND DIETETICS:

Will you kindly tell me something further about the soil and conditions necessary for the successful cultivation of golden seal? Do you think it will thrive in this locality? Is the climate of New England sufficiently warm to bring it to perfection? Does it do best in clay or mould, wet or dry soil?

N. W. SANBORN, M.D.
Holden, Mass.

EDITOR JOURNAL OF THERAPEUTICS AND DIETETICS:

I take the liberty of writing to you, asking for information in regard to the cultivation of hydrastis canadensis, and whether you think it can be grown with profit as far north as this. Also, what is the cost of the roots for planting, and where can they be obtained?

ALBERT EDWARDS,
Dartmouth, Nova Scotia.

The above are samples of the letters we are receiving from different parts of the country asking about hydrastis, and show a very general interest in the subject. It is evident that Dr. Hoover has a decided advantage over the other two, in that he lives in a section of the country in which golden seal is indigenous, and even has a forest of his own in which to grow it, without any expense for shading. He ought to be able to make good money out of it, with little expense or trouble. To Dr.

Sanborn I would say that golden seal is found growing wild in New England only to a very limited extent, and that mostly in the southwestern portion. As a cultivated plant in New England, it is still on trial. My own limited experience has shown me that it can be grown here, but whether or not successfully on a commercial scale is still an open question. It needs a moist, fertile, loose soil. It will not do well in a dry soil, nor in one too wet. Henkel and Klugh say that the soil conditions should imitate as closely as possible those seen in thrifty deciduous forests. The soil should contain an ample supply of humus, well worked into the ground to secure lightness, and the moisture-retaining property of forest soils. The best form of humus is probably leaf-mold, but good results may be obtained by mulching in the autumn or early winter with leaves, straw, well-rotted stable manure, or similar materials. Lloyd says that *hydrastis* is easily cultivated. It needs to be kept free from grass, which smothers it, and prevents increase by adventitious buds on the running fibers. For this reason, rather than the necessity of deep shade, natural patches of *hydrastis* abound only in rich, soft, loamy woodlands. Persons familiar with natural *hydrastis* know that it grows thick in woodland clumps, the patches under the beeches being the ones where it luxuriates to the best advantage. To Albert Edwards, I will say that it is quite doubtful whether golden seal will thrive as far northward as Nova Scotia. Its natural habitat does not extend further northward than southern Ontario. The safest way for him to settle the question is to try the experiment of cultivating it on a small scale, and decide for himself, as well as for all others who are interested. This can be done at a small expense, and very little time and labor. I have answered his other questions by letter.

J. M. F.

GLONIN IN EPILEPSY, ECHINACEA IN EPITHELIOMA

EDITOR JOURNAL OF THERAPEUTICS AND DIETETICS:

In reading the case of epilepsy, on page 57, of your November issue, it occurs to me that possibly glonoin may help that case, especially if there are signs of cerebral congestion during the spasm. Glonoin has been used in similar cases in combination with solanum, with the effect to cure the case — of course treating whatever source of irritation is found in the system. It was given in tablet or granule form three times a day. If there is sufficient warning of the attack, one or two granules of glonoin taken at once will abort or prevent the attack.

Dr. Swartz inquires about echinacea. I have used this drug now a little more than three years in a case of epithelioma, keeping it in check. My method is to wash it in the morning with a dilute solution of menthol compound (Abbott), and once or twice a day apply a saturated solution

of echinacea tablets in water. On a patch under the corner of the eye, where the tears irritate it, the echinacea does not quite cure, but keeps it in check. It cures up a patch elsewhere in a few days. A few months ago, a friend who had both sides of his nose well crusted, and had failed to get relief from his doctor, applied to me. I gave him the same treatment, with the addition of the triple arsenates with nuclein internally, as he was needing stimulation. To-day there is only a small patch under the corner of one eye. I may say that I used the alcoholic extract of the leaves of echinacea before I was able to get the tablets.

G. H. FRENCH,
Carbondale, Ill.

We are glad to note this ready response to the questions asked in the November number. It is such letters as this that we desire for this department. In this way we can help one another. I would suggest, however, to Dr. French, that his answers would have been more helpful if he had taken a little greater pains to give the exact dose used. What is the size of the dose contained in the granule of glonoin employed by him? Grain 1-250?

J. M. F.

THE ABORTIVE TREATMENT OF DISEASE

Believing that one of the most important advances which can possibly be made in the practice of medicine would consist in the general adoption of the method of treating disease in its incipient stages, with the object of retarding or preventing its further development — in other words, of “aborting” or “breaking up” the disease, or failing in this, of shortening or otherwise favorably modifying its usual course — we invite the attention of the readers of the JOURNAL to the subject of *The Abortive Treatment of Disease*, and ask them to send us brief notes of their experience with these methods of treating any disease or diseased condition which they may have succeeded in aborting, or otherwise favorably modifying. Make your reports brief and to the point, and never mind the exact wording. Give your special methods of treatment. Specify the preparations used. State the doses used and the method of dosage employed. Skip all preliminaries, and begin in the middle. Treat only a single subject in one letter. Limit yourself to from two to three hundred words if possible. Send all such reports direct to the Associate Editor, Milford, Mass., who will attend to any editing which may be necessary, and present the reports in the Medical Round Table, for the benefit of the other readers of this department, and also for their criticisms and suggestions. In this way we can make this the most practical department of the JOURNAL.

J. M. F.

BOOK REVIEWS

Bacterial Food Poisoning, a concise Exposition of the Etiology, Pathology, Symptomatology, Prophylaxis, and Treatment of So-Called Ptomaine Poisoning, by PROFESSOR DR. A. DIEODONNE, Munich. Translated and edited, with additions, by DR. CHARLES FREDERICK BOLDUAN, Bacteriologist, Research Laboratory, Department of Health, City of New York. 8vo, pp. 127. Cloth. Price \$1.00 net. E. B. Treat & Co., New York City.

Those who are interested in food poisoning by means of the different forms of bacteria will find much to instruct them in the pages of this monograph. The various forms of the bacteria that invest food products are concisely described, their symptoms pointed out, and their pathology and treatment indicated.

Intestinal Auto-Intoxication, by A. COMBE, M.D., Professor of Clinical Pediatrics at the University of Lausanne (Switzerland); Chief of Clinic for Children's Diseases; President of the Swiss Pediatric Society. *Together with an Appendix on the Lactic Ferments with Particular Reference to their Application in Intestinal Therapeutics*, by ALBERT FOURNIER, formerly Demonstrator at la Sorbonne, Paris. Only Authorized English Adaptation, by WILLIAM GAYNOR STATES, M.D., Clinical Assistant Rectal and Intestinal Diseases, New York Polyclinic; Member of American Medical Association; Member of State and County Medical Society of New York, etc., with Eighteen Figures in the Text, Four of Which are Colored. 8vo, pp. 461. Cloth. Price \$4.00 net. Rebman Company, 1123 Broadway, New York City.

Intestinal Auto-Intoxication, as a medium by which many of the abnormal conditions of our present life are produced, is being studied more closely than ever before. This work is an excellent guide along these lines and is sure to prove helpful to all who consult its pages for increased knowledge on this subject.

Hypnotism or Suggestion and Psychotherapy. A Study of the Psychological, Psycho-Physiological, and Therapeutic Aspects of Hypnotism, by AUGUST FOREL, M.D., Dr. Phil. (H. C.), Chigny, Switzerland. Formerly Professor of Psychiatry and Director of the Provincial Lunatic Asylum, Zurich. Translated from the Fifth German Edition, by H. W. ARMIT, M.R.C.S., L.R.C.P. 8vo, pp. 323. Cloth. Price \$3.00 net. Rebman Company, 1123 Broadway, New York City.

The subjects dealt with in this book are attracting so much attention at the present time that the presentation of this work is indeed a timely one. It cannot fail to prove interesting and instructive to all who are seeking light along the lines of Suggestion and Psychotherapy.

Practical Life Insurance Examinations, with a chapter on the insurance of substandard lives. By MURRAY ELLIOTT RAMSEY, M.D. 12mo, pp. 232, cloth, \$1.25 net. J. B. Lippincott Company, Philadelphia and London.

This work is an exceedingly practical one, bringing into small compass the essentials of life insurance examinations. It treats of the following general topics: The personal qualifications of the examiner; external examination of the applicant; personal history of the applicant; physical examination of the chest; the pulse, blood vessels, and neuroses of the heart; physical examination of the abdomen; examination of the urine; diseases and conditions affecting life insurance; the insurance of substandard lives.

A careful examination reveals the fact that though smaller than most of the works devoted to this subject, it contains more of the real pith of the matters considered than many larger books. It is a book which can be unhesitatingly recommended to every physician who desires to gain a working knowledge of the principles and technique of life insurance examinations.

J. M. F.

Heredity, by J. ARTHUR THOMPSON, M.A., Regius Professor of Natural History, in the University of Aberdeen, author of "The Study of Animal Life," "The Science of Life," "Outlines of Geology," "The Progress of Science," "Herbert Spencer," etc.; joint author of "The Evolution of Sex." With forty-nine illustrations. New York, G. P. Putnam's Sons, London, John Murray. 1908. Cloth, octavo, 605 pages. Price not given.

This book is intended as an introduction to the study of heredity, which every one admits to be a subject of fascinating interest and of great practical importance. The author is a disciple of those theories of heredity which are known as Weismannism; for example, he does not believe in the transmissibility of acquired characteristics. In his study of the subject, he gives prominence to three lines of conclusions, namely, those reached by microscopic study of the germ cells, those reached by the application of statistical methods, and those reached by experiment. The several chapters treat of Heredity and Inheritance, The Physical Basis of Inheritance, Heredity and Variation, Common Modes of Inheritance, Reversion and Allied Phenomena, Telegency, and Other Disputed Questions. The Transmission of Acquired Characters, Heredity and Disease, Statistical Study of Inheritance, Experimental Study of Inheritance, History of Theories of Heredity and Inheritance, Heredity and Development, Heredity and Sex, and Social Aspects of Biological Results. The work as a whole is one of great value to all who are interested — as what physician is not — in the subject of heredity.

J. M. F.

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EDITORIALS

A UNIQUE MEDICAL MEETING

On the first day of April there was held in Milford, Mass., the regular meeting of the Thurber Medical Association.

This medical society admits to its membership physicians of all "schools," its principal requirement being that they shall be *legal practitioners* of medicine.

The subject of this meeting was "Rheumatism" and the different methods of treating this affection was presented by different members of the Association and their invited guests. The latter consisted of Drs. Hunt, McIntosh, and Howes.

The meeting was so enjoyable and profitable that we are pleased to be able to present to our readers the full text of all the papers read in this issue of our JOURNAL.

In order to accomplish this we have been obliged to omit other articles that had been planned for this number; but we felt that all the papers on "Rheumatism" should be read at once in order to get the best results from their perusal.



DEPARTMENT OF THERAPEUTICS

RHEUMATISM, ITS ETIOLOGY, PATHOLOGY, AND SEQUELÆ

BY ERNEST L. HUNT, M.D., WORCESTER, MASS.

Your committee exhibited commendable generosity in assigning to one whose experience with the disease under consideration must be very modest in comparison with that of most of you veteran practitioners, a part of the subject having sufficient scope to permit of a paper of almost any length. They did not fail, however, to hint at a time limit for its presentation, by which wise proviso you are protected, and I find myself at liberty to define with some particularity the aspects of my theme upon which I consider it most profitable to dwell.

In its common acceptance with the rank and file of the profession, as well as with the laity, the term rheumatism variously qualified embraces most of the painful affections of the joints and muscles. This is so because of the slow progress made in differentiating the many diseased conditions to which the joints are subject, and establishing a classification upon a truly scientific basis. Nor do we lack good reasons for such failures to free the term from liability to misuse, since the different joint lesions present so many symptoms and appearances in common, and the question as to etiology in so many instances remains still within the field of controversy. When the experts do not agree what wonder that the practical physician "stands pat" in the use of time-honored terminology.

For the past decade, however, much gray matter has been exercised in the study of rheumatism and allied conditions, and a certain amount of order has been brought out of chaos. Progress has been made by appreciating that some forms of joint inflammation tend to clear up without permanent injury to the structures, while others tend to become chronic, and ultimately tend toward destruction of the joint functions, if not the joint proper. Another important advance has been made by the limitation of the "diathetic theory" to conditions in which characteristic metabolic disturbances can be proved.

These, with the conditions where the questions of etiology have been definitely worked out, have formed a basis for a classification of great practical utility both for the clinician and the investigator. I herewith present a tabular arrangement embracing the foregoing principles as applied to the common type of joint disease.

CHART I

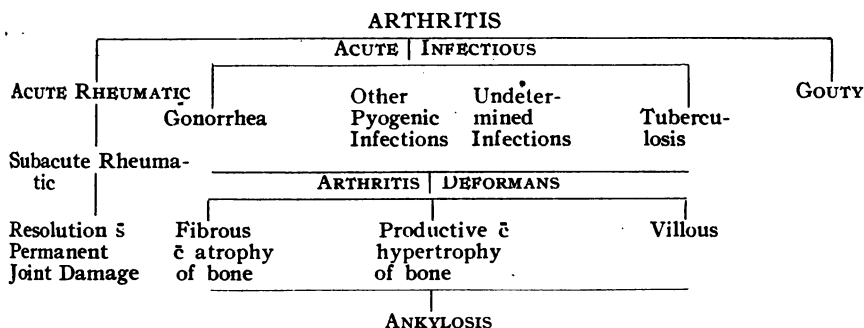


TABLE OF COMMON JOINT AFFECTIONS

Herein you will observe that the disease ordinarily spoken of as rheumatic fever or acute rheumatism finds a class by itself based upon its known tendency to terminate in complete resolution with joint functions unimpaired.

All conditions, except tuberculosis, tending toward permanent tissue changes at the joints, even though in early stages hardly distinguishable clinically from the foregoing, are brought under the arthritis deformans group. Gout, the metabolic origin of which seems well established, stands alone. "Chronic rheumatism" and "rheumatic gout" have passed into disuse as misnomers, although the former may still have some slight claim for survival.

In this connection Fletcher, in "Modern Medicine," says, "As our knowledge of chronic articular affections has increased, the opinion is becoming more firmly established that there is no such condition as chronic articular rheumatism. An acute rheumatic arthritis, when it subsides, practically never leaves any deformity or limitation in functional activity. Consequently, when deformity or impaired motion supervenes upon one or more attacks of acute arthritis, we can be reasonably certain that we are not dealing with a rheumatic affection, but really with gout or arthritis deformans.

Acute Rheumatism.—I prefer this designation to acute rheumatic polyarthritis, because the latter expresses only part of the story. Acute rheumatism constitutes a disease entity of an acute infective nature in which the joint affection is but one manifestation.

As early as 1888 Cheadle (quoted by Poynton, in "Modern Medicine") wrote, "The occasional epidemic prevalence, the variability of type, the incidence upon the young, the occurrence of tonsillitis, of endocarditis, of pneumonia, of erythematous eruption; the rapid anemia, the tendency to capillary hemorrhage and albuminuria; the implication of joints, the

relapses, the occasional supervention of hyperpyrexia, the nervous disturbances, the specific power of salicylic acid are all suggestive of an infectious disease." To this Poynton adds, "The morbid anatomy points to its classification among diseases that result from infections with micrococci, streptococci, staphylococci, and pneumococci."

Etiology.—With the advance of bacteriological technique evidence of the infectious nature of the disease began to appear in more tangible form. In 1899 Wasserman isolated a diplococcus from a case of chorea, which upon injection into a rabbit gave rise to a multiple arthritis. Since then many others have isolated a similar organism from the joints of rheumatic patients. Prominent among these have been Poynton and Paine, Beattie and others. The former have recovered it from thirty-five cases, while Beattie has not only recovered the organism from several cases, but has reproduced multiple non-purulent arthritis in both rabbits and a monkey, and in one rabbit produced fairly typical chorea. Workers on this side of the water have been less successful except Cole, of Johns Hopkins, who obtained fairly typical lesions with an organism corresponding somewhat with Beattie's, while with ordinary streptococci his arthritides were purulent.

The Beattie organism grows readily, produces acid in all sugar media, coagulates milk, and precipitates bile salts from a special medium which is not so affected by the ordinary strains of streptococci.

Other workers suggest that the disease is but an ordinary pyemia in which the virulence of the organisms is lowered. The fact that the disease is occasionally rapidly fatal yet never characterized by purulent joint lesions seems enough to refute this theory. (*Poynton.*)

Personally, I feel that we should accept the micrococcus rheumaticus, as Beattie terms the organism, at least tentatively until a more complete demonstration settles the question one way or the other.

Pathology.—The seat of the bacterial growth is found in the sub-endothelial tissues chiefly, hence the joints, the lining of blood vessels and heart valves, the pericardium, pleura, tendon sheaths, and occasionally meninges, are the structures involved. From their anatomical and functional liability to impaired vitality from external causes, *i.e.* traumata, wet or cold, the infection has special predilection for the joints. The frequent association of tonsillitis or a simple angina with the onset of the disease is evidence both as to avenue of entrance of the infection and of the influence of exposure to cold or wet as exciting causes of an attack.

The process in the joints is usually a simple one, consisting of areas of subendothelial congestion with rupture of capillaries and necrosis, leucocytic invasion, and the effusion of lymph into the joint cavity, followed by resolution by resorption of exudate and production of fibroblasts.

Unless the necrosis destroys the endothelial layer the bacteria do not gain entrance to the joint cavity, and when they do are quickly destroyed

by the serum and leucocytes. The joint inflammation never goes to suppuration. Indeed suppuration is never found in true rheumatic inflammation except rarely in pericarditis. (*Poynton.*)

The process as affecting the heart valves is essentially the same with the modification, dependent upon the different anatomical structure, that the fibrous healing process here results in contraction and thickening of the valve cusps, permanently affecting their functions, or (2) the necrosis may be so great as to break down the endothelium, whereupon there is deposit of fibrin upon the diseased valve with partial organization, forming the "vegetation" of malignant endocarditis.

The pathological picture in pericarditis, rheumatic nodes, and tenosynovitis is essentially like the simple form above described.

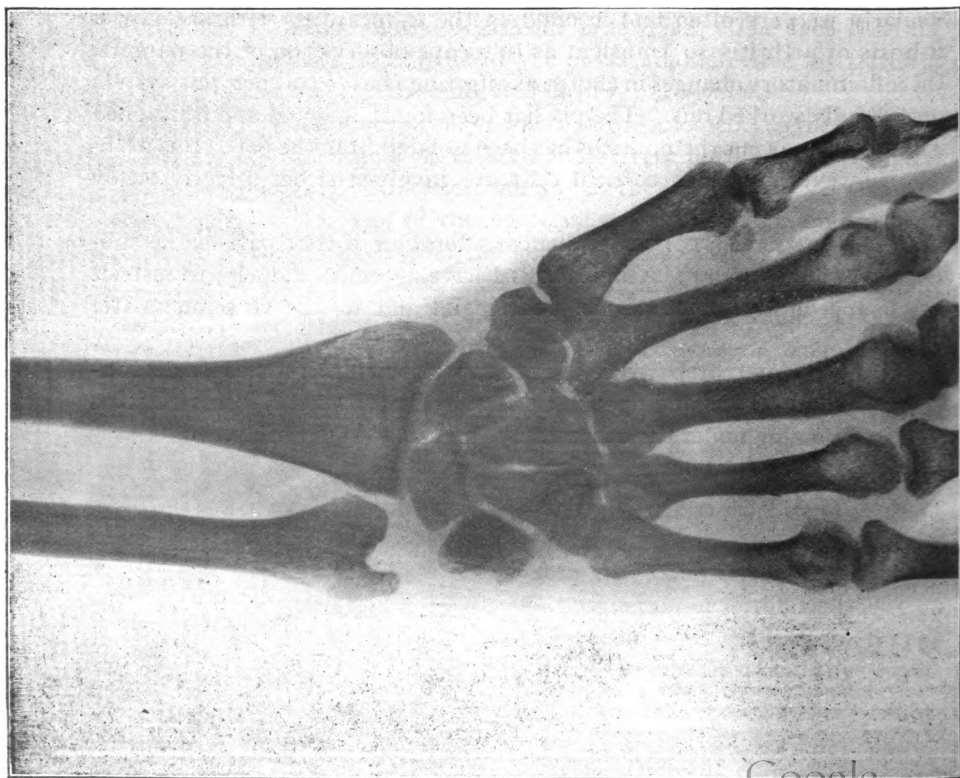
Hardly less important than the endocarditis is the parenchymatous degeneration which in severe cases occurs with great constancy in the heart muscle and in the convoluted tubules of the kidneys. These seem essentially toxic in nature and do not afford evidence of direct bacterial action.

Chorea.—This disease is now admittedly a rheumatic equivalent. In it we find all the local manifestations of acute rheumatism except that the joints usually escape when the central nervous system is the chief seat of disease, but it is by no means rare to have a history of alternating attacks of acute chorea and acute polyarthritis in the same individual. Similarly we very often find in children the endocarditis with absence of arthritis or arthritis so transient as to escape observation of the parents. The inflammatory changes in chorea as affecting the central nervous system are not fully worked out. The pia has been found injected and thickened and the micrococcus rheumaticus has been isolated from the pia. It is probable, however, that the cortical cells are involved either directly or by toxins.

This, gentlemen, concludes the consideration of that part of the subject which comes under the limitations I have assumed, namely, to restrict myself to the viewpoint of the pathologist and to the true rheumatic affections.

I am, however, prepared to offer to any who may wish to see, a demonstration of skiagrams and specimens illustrative of several forms of joint affections coming under the other groups exhibited in my table.

I thank you for your attention.



ACUTE RHEUMATISM



ANKYLOSING SPONDYLITIS
Ankylosing Type—Wrist, Metacarpals, and Ankylosis of Carpus.

RHEUMATISM, ITS TREATMENT

BY CHARLES B. HUSSEY, M.D., FRANKLIN, MASS.

In taking up the subject of "The Treatment of Rheumatism," from the standpoint of the "old school," I confess that I shall treat it somewhat differently from what has been my customary practice during the past few years. I feel that we deal with no disease wherein proper hygienic and prophylactic measures are of more importance than in acute rheumatism. First of all we should give our attention to the prophylaxis. Patients who have the so-called "rheumatic diathesis" should take especial care to avoid prolonged exposure to cold, especially damp cold, and such clothing should be worn as will give the maximum amount of warmth with the minimum amount of weight; and will also allow free evaporation of the poisonous excretions from the skin. In view of the admitted fact, that, in a great many cases, infection takes place through the tonsils, I believe that we should make a careful examination of the throat in every case and remove any diseased portion of the tonsils, in order to lessen the chances of future infection. Although methods of reducing hypertrophied tonsils may be employed, other than tonsilotomy, yet they are so slow in their action and, withal, uncertain, that it would seem that the operative method is by far the one to be preferred. When rheumatism has developed the patient should be put to bed at once and placed upon a restricted diet, milk being considered the most efficacious. The patient should be kept warm, but the bed clothing should be light, as excessive weight adds to his discomfort. I usually wrap the affected joints in a thin layer of absorbent cotton and change this once or twice daily, depending upon the amount of excretion from the skin. Whatever line of specific treatment we may employ, its efficacy will be greatly enhanced by proper attention to the secretions and excretions of the body, and greatly decreased by lack of this attention. In the process of metabolism, disassimilation takes place much more rapidly than assimilation during an attack of rheumatism. To care for these excessive waste products we must aid nature by bringing about increased activity of the excretory organs. By stimulating secretion assimilation takes place much more rapidly and efficiently, and this is very essential in a disease which produces marked anæmia so rapidly as does rheumatism. The importance of stimulating the liver as well as the skin and kidneys is often overlooked, and I usually take a tip from our friends, the alkaloidists, and begin my medical treatment by giving repeated small doses of calomel and podophylin, following the final dose in one hour, with a full dose of saline laxative.

If free catharsis does not take place, the saline may be repeated in a couple of hours. The liver may be kept active by the addition of colchicine to our other treatment. On account of the free diaphoresis which

accompanies rheumatism, and as the sweat quickly decomposes, the patient should be frequently bathed and the bed linen changed daily. Having paved the way for our more specific treatment, we find ourselves relegated to the age of empirics, for our sheet anchor, the salicylates, are certainly given empirically, it not being known in just what manner they act. It is believed by some observers that they are slightly antitoxic. Here again is demonstrated the relation between the tonsils and rheumatism, as the efficacy of salicylate of sodium in some cases of follicular tonsilitis is well known. In order to obtain the best and quickest results the salicylates should be pushed to the point of toleration. Large doses should be given every two or three hours at first, gradually diminishing the dosage and lengthening the interval of administration as the symptoms subside. The well-known tendency of the salicylates to upset the stomach becomes, quite often, a disturbing factor in carrying out this line of treatment. In such cases I usually withdraw the salicylates entirely and substitute the local application of betubol, mesotan, or some other preparation for local use. In conjunction with this I employ antiphlogistic remedies internally, until the subsidence of the fever, and then follow with a stomachic tonic until the digestive disturbances are overcome, after which I return to the salicylates in smaller doses or, if the case is progressing favorably, omit them and put the patient on to iron and other general tonics.

I have found the arsenate of strychnia, 1-37 gr. T. R. I., to be a valuable adjuvant to my other treatment in cases which were proving obstinate. Recently the salicylate of strontium has come to the front as being of great value in cases where the other salicylates have upset the stomach. Personally, I have found this to be true, although I do not think the results have been attained as rapidly as with the salicylate of sodium. Massage, while of use in chronic cases, I believe to be absolutely harmful in the acute condition; while it may give relief at the time of its application, yet, several hours afterwards, I have seen patients suffer intensely from no apparent cause. This would seem to be the inevitable result following friction applied to such highly inflamed tissues. I shall not speak of the complications at this time, as each requires its own special treatment. Recently I have known of two cases which were entirely cured by the hypodermic injection of a combination of citrate of iron and arsenious acid, one injection daily, where other means had failed. This would seem to be along the line of increasing the opsonic index.

ALKALOIDAL TREATMENT OF RHEUMATISM

BY WM. L. JOHNSON, M.D., UXBRIDGE, MASS.

Alkalometry offers precise, definite, and effectual remedies for the cure of this most painful and trying disease. Acute rheumatism should be

attacked first by aconitine. In doses of 1-134 grain hourly it quiets fever, subdues restlessness, induces perspiration, and relieves pain. Rarely in any disease does the temperature reach a higher point than in acute rheumatism. In no case, therefore, is it of more importance to push this valued remedy to its physiological effect. The prompt reduction of temperature which follows is always a relief to every symptom. It should be continued until the reduction is permanent. Combined with the aconitine in acute cases, asclepedin in 1-6 grain doses in hot water is a very useful remedy. It causes continuous and gentle perspiration. It helps to relieve the nervous symptoms which are nearly always present. It certainly checks the progress of the disease, gives marked relief to the pain and mildly induces sleep. For external application I find nothing to be so markedly beneficial as water. If the fever is high, the joints hot and inflamed, cold water, iced if desired, is preferable. It must be changed every few minutes, and the relief it gives is often marvelous. Warm water in many cases is just as beneficial, and the temperature should in all cases be governed by the feelings of the patient, but that water is the most valuable external remedy we have in acute rheumatism I firmly believe.

In muscular rheumatism and the subacute varieties we have no remedy equal to bryonin. In doses of 1-67 grain hourly the pains are relieved wonderfully, the stiffness of the muscles disappears rapidly, and it can be continued until all trace of the disease is removed, without any unpleasant effect. In chronic rheumatism, two remedies have in my hand been of universal benefit. Colchicine in doses of 1-134 grain can hardly fail to be beneficial in almost every case. Its marked effect in increasing the secretions of the skin, the liver, and the kidneys would seem to indicate this result. But it is a remedy that needs to be watched closely. It is beneficial so quickly; it gives such marked relief that it is frequently taken longer than necessary, and then its cathartic effect is something surprising. In weak subjects this must be carefully guarded against. The other remedy is calcium carbonate. It has none of the purging qualities of colchicine. Its apparent action is confined entirely to the kidneys, but its effect is most happy, and sufferers from that worst of all diseases, chronic rheumatism, can be safely promised relief and comfort if not positive cure by the intelligent administration of these two remedies.

THE ALKALOIDAL TREATMENT OF RHEUMATISM

BY J. M. FRENCH, M.D., MILFORD, MASS.

A wise man once wrote an essay on "Snakes in Ireland," of which the opening sentence was this, "There are no snakes in Ireland."

Imitating his example, I will say, there is no alkaloidal treatment for rheumatism. In fact, it is safe to go a little further, and say, that

while there are treatments unnumbered for this disease, there is no treatment which is satisfactory. Or if there is, I have never found it. Rheumatism remains to this day what it was centuries ago, the *opprobrium medicine*. We have almost mastered diphtheria; we have learned something about typhoid fever; we think we know how to treat pneumonia; and we are able to greatly lessen the death rate from consumption; but rheumatism! What can we say of that?

Rheumatism used to be caused by lactic acid in the alimentary canal. Then it became a disease of the nervous system. Shortly after this it was a symptom of the ubiquitous uric acid diathesis, an auto-intoxication, a case of self-poisoning. Now it is an acute infection, depending on some unknown micro-organism. What it will be to-morrow I cannot tell.

Of old, acute articular rheumatism was treated, and with fair success, by bleeding, vomiting, and purging. Then for a long time the expectant method of treatment was the fashion. This was sometimes known as the six weeks' cure. Half a century ago Reynolds introduced the alkaline treatment, which was used with so good success that it survives in selected cases to this day. After this came the salicylic treatment, which has enjoyed a greater vogue than any other method, at least within my day and knowledge. Perhaps this comes nearer than any other to being an alkaloidal treatment, as salicin is an active principle, and the best salicylic acid is made from oil of wintergreen. A little later Mays introduced the strychnine treatment, and this, too, had its day and still has its advocates. Last of all, but perhaps not least, came the eliminative treatment — clean out, clean up, and keep clean. This is the genuine alkaloidal doctrine, and perhaps I should claim it as the alkaloidal treatment. Add to it the element of intestinal antiseptics, and its results are very satisfactory.

But indeed no two cases of rheumatism should be treated exactly alike. Success comes from treating the patient rather than the disease. Twenty-five years ago Roberts Bartholow divided his cases into three classes according to their condition, and gave a different treatment to each, as follows: (1) Obese, florid but flabby, drinkers of malt liquors — the alkalies.

(2.) Pale, debilitated, anemic young subjects — the tincture of the chloride of iron.

(3.) Vigorous, able-bodied subjects, with a hereditary tendency or rheumatic diathesis — the salicylates.

I think this treatment is based on bed-rock principles.

Carry the idea a little further, and differentiate not only the general conditions but the particular symptoms, and you prepare the way for the treatment by specific medication, of which Dr. Howes will tell you more fully. Select your remedies on the principle of "similia," and homeopathy steps in. And I want to say, that, if your experience is any like mine,

the time comes when you are willing to try anybody's plan —any old plan, or any new plan, for treating rheumatism.

Whatever plan is used for internal treatment, some local applications may well be employed. Hot saturated solutions of the salicylates; the oil of wintergreen; chloroform or other anodyne liniments; alkaline lotions of various kinds; and withal, wrapping the affected parts in cotton, all are good.

Plenty of water to drink. Weak lemonade, perhaps neutralized with soda. Strained vegetable and meat soups rather than milk. Keep the bowels open and moving freely. No alcohol. No opiates. Stick to this last if possible. They always do harm; and yet ten to one the time will come when you will of necessity have recourse to morphine hypodermically.

I close as I began. There is no alkaloidal treatment for rheumatism. If there is any satisfactory treatment I have not found it. But my eyes are open and I am looking.

RHEUMATISM, ITS HOMEOPATHIC TREATMENT

BY SOLON ABBOTT, M.D., FRANKLIN, MASS.

IN presenting this paper on the treatment of rheumatism I am supposed to begin where etiology and pathology leave off. Take it for granted that I am a believer in the law of "similars." Preliminary to suggesting a remedy a few words leading up to the point of why I may expect results from the homeopathic remedy may not be out of place.

The first thing to do in attempting to cure a case is to discover the cause, and when it is discovered to remove it. We are all agreed, I presume, as to the cause or causes which induce an attack of rheumatism. It has been clearly shown, I think, that there is faulty metabolism connected with every case, that there is existing, in many cases, a predisposition to acquire the disease, or a precedent state, whereby the patient becomes more susceptible to the exciting cause. By some fault of something, products are formed that are inimical to health. The forces controlling the functions of the body have been thrown out of harmony. Somewhere in nature's laboratory something has gone wrong. I believe we must look to the great system of nerves, which furnishes life and energy to every cell. The living cell coming in contact with the various materials transforms them into new substances. When the forces dominating cell energy are disturbed, the cell ceases to do its duty properly, metabolism becomes faulty, and disease follows. Rheumatism is said to be a microbic toxemia. Microbes, like seeds, must have a proper soil if they are to flourish and grow. Microbes do *not* flourish in the healthy body. The homeopathic remedy prescribed on the law of "similars"

restores harmony, the cells do their work properly, the microbes are destroyed by nature's army of workers, and health is restored. We must treat the patient as well as the disease.

In the homeopathic proving of drugs, it has been found that each drug, acting through the nervous system, produces symptoms peculiar to itself, and in any given case when the symptoms produced by a drug are similar to those of the disease, we say it is the "*similar*," or curative remedy.

In other words, "two forces that act on the same organ and tissue, producing similar symptoms, when acting together annihilate each other's action." Thus are nature's forces brought into harmony and health is restored.

All cases of rheumatism do not present the same picture, hence no routine of remedies can be prescribed, but the remedy to cure must have the symptoms similar to those presented by the case.

A large number of drugs have been found useful in this disease. I will not mention them all, but will speak of those which in my experience have served me best. First is aconite, useful in the first stage of almost every acute inflammation in every organ of the body.

There is a full bounding pulse, much heat, dry, burning skin, violent thirst, red face, great restlessness, nervous excitability, and stitching pain.

Apis melifica.—Stinging pains, little or no thirst, oedematous swelling, profuse sweat brings relief.

Arnica.—Tearing pain, great soreness, numbness, and swelling, fears to be touched, the jar of the bed by walking about the room is painful. The couch feels hard.

Arsenicum.—Burning pain, pale swelling of the joints, great exhaustion, restlessness, and anxiety, worse at night. Profuse sweat relieves the pain, but leaves the patient terribly weak.

Belladonna.—Pressing, tearing, cutting pain deep in the bones, frequently running from the affected joints along the limbs like electric shocks. Pains come and go quickly. Red shining swelling of the joints. Dry, hot skin, high fever, thirst, throbbing headache, and pulsation of the carotid arteries.

Benzoic Acid.—Tearing pains, as if in the bones, irritable bladder, urine smells like that of a horse.

Bryonia.—Stitching pain, tearing pain, worse from the slightest motion. The swelling is not principally confined to the joints, is of a faintish redness, streaking out in different directions. Great thirst, or dry mouth without thirst, fever and *sour sweat*, stools hard and dry, as if burnt. The muscular fiber itself is the seat of soreness and pain. In the provings of drugs bryonia is the only drug that acts as a specific irritant to muscular tissue.

Colchicum.—Burning, tearing, or jerky pains, shifting, without swelling

or redness, or pale swelling, constant chilliness, with short flushes of heat, dry skin, or profuse sweat suddenly breaking out and then disappearing.

Dulcamara.— Chronic rheumatism, which gets worse from any little exposure to cold, or any change of temperature from warm to cold.

Guaiacum.— Rheumatism with contractions of the limbs. Pain is excited by the slightest motion, much heat in the affected part.

Lachesis.— Stinging pains, swellings bluish red. Pains are always worse after sleeping.

Phytolacca.— Heavy aching pains, worse in damp weather, periosteum involved, glands of axilla and neck enlarged. Patient worse at night.

Pulsatilla.— Drawing, tearing pains, shifting from one part to another, face pale, no thirst, constant chilliness. Pressure relieves the pain. Patients are usually of a mild disposition and inclined to weep.

Rhus tox.— Drawing, tearing pains in fibrous tissues, joints and sheaths of nerves, sense of lameness, with or without swelling, great restlessness, must constantly keep moving. Always worse during rest.

Salicylic Acid.— Probably no drug has been used so universally as salicylic acid. There is pain, swelling, and redness, especially affecting the joints. Great acidity of stomach, irritability and despondency.

Sulphur.— In chronic rheumatism, tearing stitching pain. After the stitching pain leaves the pain is dull and aching, head hot, feet cold, hot flashes, followed by faintness. Soles of the feet burning hot at night.

Thuja.— Rheumatic and arthritic pains of sycotic nature. Sweating of parts not covered; those which are covered keep dry.

I have endeavored to give only the characteristic symptoms of a few of the remedies used most. A stool will stand on three legs, likewise three characteristic symptoms give the *key* by which you may discover the probable remedy. The balance of the drug picture can easily be found, provided you are familiar with the provings. Aside from the indicated homeopathic remedy there are many other things that may be done. Palliative measures are the property of all schools. Toxic material in the system must be eliminated. Don't expect nature to do everything unassisted, and with all the remedies you use, don't forget to use "*horse sense*." "Clean out, clean up, and keep clean."

THE TREATMENT OF RHEUMATISM FROM THE STANDPOINT OF HOMEOPATHY

BY GEO. H. COFFIN, M.D., NORTHBORO, MASS.

What is rheumatism? In presenting a paper on the subject of its homeopathic treatment one might be expected to accurately and scientifically define the disease whose treatment he is attempting to present.

This seems to be necessary because traditionary medicine has been accustomed to diagnose the disease and then treat the diagnosis. If the latter is faulty, then the treatment goes for naught, even if it does not go farther and increase the burden under which the patient's system is laboring, and make recovery more difficult.

But while the homeopathic physician is keenly alive to the desire of all to know the correct diagnosis, he is not dependent upon a correct diagnosis for his ability to successfully treat and cure his patient.

Authors of textbooks, and other writers on pathology and the treatment of disease, have found it very difficult to agree upon a practical working definition of rheumatism. Possibly there are no cases in regard to which more mistakes in diagnosis are made clinically than in cases presenting more or less of the clinical symptoms of rheumatism.

I shall not attempt to do in this paper what experts have failed to accomplish successfully when making the most careful efforts of their lives. I will only say that I am considering cases of rheumatism that are usually classified under the following designations,—rheumatic fever, acute and chronic articular rheumatism, acute and chronic muscular rheumatism, this last, according to the location of the suffering, bearing the special names of cephalodynia, torticollis, pleurodynia, omodynia, lumbago, etc. I am not considering the treatment of neuralgia, neuritis, rheumatoid arthritis or gout, though the same symptoms if present in these diseases would lead to the successful use of the same remedies. Moreover, I leave untouched, though not of secondary importance, the adjuvants to medicine. They are not homeopathic, but they are the common property of all schools of medicine.

The patient if suffering from any of these forms of disease comes to you for the relief of pain. What is easier or more satisfactory than to get out the hypodermic syringe and administer a dose of morphine? Or, if you have a higher ideal and wish to really and permanently benefit your patient, and have learned that the cause of all this pain lies in the fact, or the supposed fact, that the blood is overcharged with lactic acid, what is easier or more reasonable than to administer alkaline remedies in the form of spring waters of alkaline reaction or other remedies to neutralize the hyperacidity of the blood, or rather its diminished alkalinity?

In the treatment of this disease the homeopathic physician has at his disposal several hundred different remedies, any one of which may be the key to the situation in the next case of rheumatism which applies to him for relief. There will be many of them which may help the case, quite likely only one which is strictly homeopathic to it. If he is successful in selecting that one, it will relieve the pain so quickly and so markedly that it will be difficult to persuade the patient that it was not morphine.

There are about seventy-five remedies which appeal to me, as I look through a list of some seven hundred remedies, as quite likely to be of use

in the treatment of cases of rheumatism. The first one is aconite and the last one is zinc.

Perhaps I cannot do better than to select a few of these remedies and point out a few of the indications or symptoms that would lead me to select each particular remedy in each particular case. My object would be to show the method of selecting the remedy.

To begin with let us take aconite. A few days ago I was called in a great hurry to attend a woman, age forty-seven, mother of nine children. She was menstruating, had been flowing copiously. The first thing I learned on entering the house was that she was in great fear of death, and expecting it, pulse small, wiry, and rapid, hands and feet cold and insensible. She was very restless, could not keep still. There was great thirst, and, except on the hands and feet, the skin was dry and hot. The insensibility of hands and feet was accompanied by a numbness, with prickling and tingling. There was a feeling of oppression about the heart. Her breathing was difficult and there were frequent fainting spells, or rather faint spells. Pain was present in the cervical region, in the praecordia, left shoulder, left lumbar region, left hip and thigh, also in the left ovarian region. She could not keep still, begged to be allowed to get up and walk.

This to me presented a picture strongly suggestive of aconite, which she received in less time than it has taken me to tell the story. I should have given drop doses of the thirtieth decimal potency, if I had had it with me. I gave the third, in which the drug substance is one part in one thousand.

She ought at her period of life to be through with her menses, but she was having quite an active hemorrhage. This nearly ceased within an hour. All the symptoms mentioned were much ameliorated, but particularly the anxiety, fear of death, and restlessness, so that when I left her in about two hours after being called, she was in comparative comfort. She is not yet entirely rid of the pain, which she regards as rheumatic. I have examined her urine and have found as follows,— 24hr. quantity 800cc, sp. g. 1023, slightest possible trace of albumen, a large amount of epithelium, excess of leucocytes.

Several years ago I had a patient consult me for rheumatism, which had been constantly troubling her since young womanhood began. Her age was sixty-four. Her daughter, about thirty-eight, and her granddaughter, six years of age, were singularly like herself. It would not do to let her hear the expression, but in a class in homeopathic materia medica we should say fat, fair, and flabby. I first made the acquaintance of the child some two years before the time of which I am speaking. I said then that if that child were sick there would be only one remedy which I should expect to find indicated. It would be pulverized and potentized oyster shell, an impure form of carbonate of lime. I had abundant opportunity later to prove the accuracy of my first impression. To the

grandmother I gave *calcareo carbonica* in the two hundredth centesimal potency; and when I saw her again I received the report that the taking of the remedy was followed by two days of very severe aggravation followed by a period of several weeks of comparative freedom from the attentions of her old enemy. Now she was worse again. The same remedy was repeated in the same potency with the same experience following. Some time later she had a severe cold and I gave her then and later many different remedies including *sac. lac.*; and during the whole time I was treating her, I repeated, interspersed between the other medicaments and non-medicinal substances, the above-mentioned *calcareo carbonica* five times in the 200th potency. She never knew what I gave her. Every time I gave this remedy in this potency I had the same report, namely, from one to three days of aggravation followed by amelioration. I sent to Philadelphia and procured the 500th potency. From this I secured the amelioration without the preliminary aggravation.

Such patients are often very unsatisfactory. They will not continue treatment till a cure is complete. After leaving Milford I was told that she had decided to commence treatment again, for nothing had ever benefited her like my treatment. All the medicines I gave her were given in the same form, and to the eye and taste they were indistinguishable. I never gave her the *calcareo carbonica* in the 200th potency without the following aggravation. I never got the aggravation following anything else. I got the amelioration following the administration of *calcareo carbonica* in the 500th potency without the aggravation.

A very common form in which rheumatism comes to us is called lumbago. It may commence with startling suddenness in what is called a crick in the back or in dropping a stitch. While this form and location suggests as many as twelve or fifteen different remedies, I always think of two at first, because these two have in most instances been all that were needed; and most frequently the successful treatment of the case resulted from a correct discrimination between these two. They are *bryonia* and *rhustica*. And, gentlemen, if you ever use either of these remedies, as I am confident you do, remember, even if the fact has never been recognized by you, you owe their use in medicine to one Samuel Hahneman, not an ignorant charlatan, assuming in his ignorance the practice of the healing art, but, as Jean Paul Richter describes him, "a double-headed prodigy of genius and erudition," who had a working knowledge of eight different languages when only twenty years of age and who was the most successful instructor of natural science in a great university in his generation.

If either of these remedies, *bryonia* and *rhustica*, wild hops and poison ivy, will do the case any good, the other will not. Well, why not give both, and so escape the trouble of being obliged to think and the possibility of selecting the wrong medicine? It so happens that each of these remedies is the antidote of the other. And yet only the other day I was asked to

buy a compound tablet containing them both. But it is not a difficult task to select as between these two. The bryonia patient is comparatively free from pain as long as the parts involved are absolutely quiet, while the rhus patient is worse while at rest, increasingly so, till he is obliged to move about to get relief. He may find it exceedingly difficult and painful to start, but he soon limbers up and gets some relief from motion. We may also get some help from a knowledge of the exciting cause of the attack. If brought on by exposure to a cold wetting, rhus (or dulcamara from the bitter sweet) may be called for; while if by exposure to dry, cold northwest winds, then bryonia (or aconite) may be of use. Either of these methods or helps in the selection of either one of these four remedies is well nigh absolute.

One of my patients, a man nearly seventy years of age, when I first met him, gave me a history of having had three or four attacks beginning in just the same way, by dropping a stitch. In each case he had been confined to the house from four to six months. Three times he has called me for this trouble in six years. Four days is the longest confinement to the house and the symptoms have varied so that I have used both bryonia and rhus in his case. Rhus may follow bryonia or bryonia may follow rhus, when by reason of excess of action the former remedy has overdone its part. I should then use a higher potency of the following remedy.

In one case of rheumatic fever I was guided to the selection of arsenicum album, white arsenic, or arsenious acid, by the fact that one day she would be better, the next worse. This alternation continued till this remedy was given. The moment I thought of this fact a second one seemed to point in the same direction. The pains were relieved for a time by hot applications, especially by hot moist applications. The character of the pains also suggested arsenic. They were burning, stinging pains. This also suggested the poison of the honey bee, from the business end, you remember. But there was great weakness, restlessness, and prostration. This spoke in favor of arsenic. The swelling of the limb was not sufficiently oedematous to approve of apis.

Belladonna would be suggested by a hot, red, shiney, badly swollen joint. The redness is of a peculiar tint. It is bright and smooth, like the redness often seen in the smooth, red rash of scarlet fever, where belladonna is so useful. Not all cases of scarlet fever show this characteristic color. In others belladonna is of little use.

If the redness were of a darker shade, the swelling less marked, and on looking into the mouth the back wall of the pharynx were seen to be dark purplish red, minute varicose veins standing out quite clearly through the mucous membrane, I should think of *phytolacca decandra*, or poke. I should also question, in my own mind at least, whether there were a syphilitic origin or modification of the disease.

Pulsatilla, the wood anemone, or wind-flower, furnishes another

valuable remedy. Its pains are like itself, variable as the wind, shifting about from place to place. One sided, usually accompanied by swelling and redness. It is a woman's remedy, but not to be forgotten, if the symptoms call for it, in the case of a male patient. A mild, tearful, yielding disposition; worse toward evening and in a warm room. Constant chilliness with heat; relieved from drinking cold water, uncovering the affected parts, and moving about in fresh, cool air.

If the attack is presumably of gonorrhœal origin, with joints involved, the *arbor vitæ*, or tree of life, may help us out and may prove a veritable tree of life to the patient. A big seed wart on the back of the hand might suggest the remedy. Think of it when you have one of those peculiar cases where the patient perspires profusely, but only on parts of the body which are exposed to the air, the covered parts remaining dry. You may pretend that you are not treating the patient homeopathically, and give *ecthol*, the active agents of which have been given to the medical world by homeopathy. Your patient may be very anxious to have you be very careful not to touch him. It may go to such an extreme that the patient has a fixed idea that his limbs are made of glass and will break, or only that you will hurt him if you touch him.

If you want to test the powers of this remedy to produce symptoms, just pluck a fresh cone from the tree, when it is beginning to grow, and chew it up. After a few days see if you have ever had cases presenting a similar picture. Don't be alarmed, or do anything for the symptoms. They will pass away and you will be none the worse for the experience.

Did time admit, I would like to present many other remedies, among them *spigelia*, where there are heart complications; *nux vomica*, where there are constipation of its peculiar kind, and spasmodic contractions, as in left-sided torticollis; *lycopodium*; *lithium carbonate*; *lachesis*, the poison from the lance-headed viper; *carbonate of potash*; *hamamelis*; *ferrum*, especially in rheumatism of the deltoid muscles, or *omodynia*, of either side; *digitalis*; *colocynth*; *colchicum*, in rheumatic attacks in hollow muscles, as the uterus and heart; *cimicifuga* for stiff neck, literal not figurative, the figurative stiff neck is sometimes amenable to *ignatia* or to *chamomilla*; the latter, if the stiffnecked rebellious disposition is especially spiteful and manifested by a woman or a child.

But what I have given you will do to illustrate the method. If the case was not too urgent, no one of these remedies would be given, even after it had suggested itself by the method shown, without looking over the whole field of its pathogenic action when administered to well persons, to see how closely it corresponds to what we find in the patient in hand. While so doing, I am often struck by the multitude of points of contact between the patient's condition and the remedy's power, which I had not previously noticed in the patient.

I am also often struck by the marvelous rapidity of action, when the

correspondence is very complete. The more complete the correspondence, the more sanguine I am of being able to quickly relieve the patient, and the higher I give the remedy. This last for two reasons, first,— I have learned that when the correspondence is very complete, the higher potencies of many remedies act more rapidly and carry the case farther toward complete recovery than do the lower ones, and second, if I give it too low, I am likely to cause aggravation, sometimes quite severe before amelioration sets in.

I have no time to speak of the repetition of the dose, which is a most important factor in producing a cure.

RHEUMATISM — ITS ELECTRICAL TREATMENT

BY HERBERT MCINTOSH, M.D., BOSTON, MASS.

This disease, as its derivation from the Greek *rheō*, to flow, proves, gets its name from a pathological conception long since abandoned. In that large class of diseases to which the term rheumatism is popularly given, some of which are infectious, some due to faults of metabolism, and others to partial or complete luxations, the symptom which is common to all is pain. Thus etiology and pathology differ widely. To such an extent is this true, that in the interest of precision the word rheumatism ought to be abandoned, or at least limited to the acute infectious type commonly called acute articular rheumatism.

Under the general term rheumatism have been loosely grouped the following diseases: acute articular rheumatism, chronic rheumatism, myalgia, arthritis, flat foot, sacro-iliac luxations, gout, and a variety of other complaints of a neuralgic nature. When, therefore, an effort is made to refer the complaints commonly called rheumatic to their true causes, we find that they are of a widely divergent nature.

ACUTE ARTICULAR RHEUMATISM.—It is customary to rely upon drug medication in the treatment of this disorder. There are, however, those who have obtained good results by electrical applications. Lewandowski recommends the faradic brush. Rockwell regards electricity of doubtful value in the acute type. Jones concedes some value, but says that "there is no great scope for the employment of electricity in that condition."

Chronic Articular Rheumatism.—Here the articular conditions accompanying the acute attack persist. For this condition the following treatments are serviceable.

- (a.) *The electric bath*, direct or sinusoidal.
- (b.) *The direct current* applied by means of moistened pads to the affected joints.
- (c.) *Phoresis*. Salicylate of sodium, the oil of wintergreen, potassium, sodium or strontium iodide or lithium carbonate may be employed

by means of a suitable electrode. Iodide of potassium may be phoretically introduced from the negative pole.

(d.) *Induction Coil Currents* following the use of the constant current are often useful.

(e.) *The static wave current* is highly beneficial for the purpose of relieving congestion. *Static sparks* re-enforce the effect of the wave current.

(f.) *Hot Air Treatment*. This type of trouble quickly responds in many instances to the application of hot air treatment.

(g.) *High Frequency*. Auto-condensation, auto-conduction, and the vacuum electrodes have been used with marked success. The patient reclining upon the auto-condensation couch may be treated with five hundred milliamperes of current for a period of twenty minutes, the treatments occurring three times or more per week.

(h.) *Radiant Light Energy*. The value of this treatment is unquestionable. Friedlander points out that electric light baths give better results than Turkish or Russian baths.

MYALGIA.—Here, of course, we must be sure that the disease which we characterize as lumbago, crick in the back, podalgia, or some other affection which takes its name from its location, is not in reality due to a displacement or luxation of the pelvic bones, or an alteration of the normal relation of the vertebrae or metatarsal bones, or, in short, to some structural rather than muscular defect. Myalgia is very amenable to treatment by physical methods. We have therefore our choice of methods already enumerated in the foregoing discussion of chronic articular rheumatism.

Of the electric method of treatment Rockwell regards the *static* as the best. In this opinion there is considerable unanimity. For this purpose sparks are the most useful, supplemented by the wave current.

Leduc regards ionic medication by means of salicylic acid of much value.

Radiant light, particularly the electric arc light, is often exceedingly prompt and effective in action. For this annoying disorder the treatments of choice are static sparks and the arc light.

ARTHRITIS DEFORMANS.—Under this head are grouped several diseases which appear to differ both in etiology and pathology. The whole subject, however, is involved in much obscurity. These disorders are alike in being rebellious to treatment. It is unquestionable, however, that the physical methods offer by far the best prospect for successful management.

Under this general head may be considered:

Rheumatoid arthritis, which frequently begins with a pain in the middle phalangeal joint of the middle finger. A swelling ensues with tendency toward ankylosis. The symmetrical distribution of these lesions suggests the probability of a central origin. The disease affects all ages, but is more likely to attack those who are in a low condition of health, and in

some instances appears to have a relation to profound emotional disturbances.

A second type is called *osteo-arthritis*. It more often occurs in well-nourished patients and is less common in men than in women. Here the enlargement of the joints is due to some extent to osteophytic changes occurring in the ends of the bones. Of these two types the first is much more amenable to treatment than the second.

Dr. Bertram Edwards includes four varieties of joint affection under the general title of *arthritis deformans*; viz. a disease occurring in children, an acute process occurring in young women, a multi-articular affection of middle-aged women, and the chronic malady of the aged.

Rheumatoid Arthritis.—The treatment of this disorder is often tedious and sometimes unresponsive. Where the condition as in rheumatoid arthritis, is due to impaired nutrition, whatever tends to improve the general condition is beneficial.

Any of the above treatments already enumerated in the discussion of chronic articular rheumatism may be employed. The following treatments seem to the writer to be most useful:

Immerse the affected hand in an aqueous solution of common salt, in which the negative pole of the constant battery is placed. The indifferent pole may be a large pad placed upon the spine, or other more contiguous spot, and a current of fifteen or more milliamperes employed.

If there is pain, the *high frequency* vacuum tube is carried over the affected area for fifteen or twenty minutes. The *blue light* is also effective for the relief of pain.

Of much utility is the employment of *static sparks* of one half to an inch in length. From five to ten sparks should be directed to each joint.

The *static wave current* may be applied by wrapping electrodes of soft metal about the joints. These treatments should be continued for twenty minutes. The treatment in these cases should be frequent, for the first weeks occurring daily.

D'Arsonval and the French electro-therapeutists regard the auto-condensation couch of much value in all arthritic disorders.

Cases of *osteo-arthritis* are still more rebellious to treatment. Both for the relief of pain and arrest of the destructive process electric baths are in the judgment of the writer the most useful. In all cases where there is ankylosis and alteration of the histology of the joint tissues the negative pole with its softening influence is beneficial.

It is well to gain whatever advantage may be secured by the kathodal diffusion of iodine, carrying the medicament directly into the affected joints.

The *sulphur baths* of Mount Clemens, Michigan, have seemed to benefit a patient of the writer afflicted with this disorder more than any other kind of treatment.

Inasmuch as the bilateral character of rheumatoid arthritis points to

a central origin of the disease, it is well to apply a soft metal electrode to the spinal cord, and administer the *static wave current*.

GOUT.—In this painful disease ionic medication has proved of much advantage. The medicaments employed have been lithium carbonate and common salt.

Bordier reports a case in which there were large uratic concretions in both hands and elbows, arm baths containing two per cent of lithium chloride were used, the circuit being completed through two large kathodal pads applied to the body. The treatments were given daily. The swellings diminished notably and the tophi in the knuckles became softened. Eighty to one hundred milliamperes were well borne, the treatments continuing for a month.

Even without medication the direct current is of great advantage, especially where large currents are employed.

The *electric bath* with direct or sinusoidal current affects nutrition in a favorable manner.

Gout depending to a large extent on altered metabolism with deficient oxygenation, it follows that currents which produce marked nutritional changes are of great advantage. *Static electricity* is therefore indicated, especially in the form of the wave current and sparks. The *static brush discharge* produces excellent effects in acute conditions.

These methods of treatment are of course to be conjoined with proper regulation of diet and exercise, inasmuch as gouty patients suffer from the retention of the products of imperfect combustion.

In conclusion it may be proper to say a word in relation to light treatment. We are probably on the threshold of great changes in the management of disease. In the fresh emphasis which is now placed among progressive physicians upon physio-therapy, light treatment is destined to play a most important part. When we consider that all life is dependent upon the sun, that all evolutionary change is a transformation of solar energy, that absence of sunlight breeds disease, that darkness means death or suspended animation, and that sunshine means health and gladness, it is clear how closely related light energy must be to those reparative changes which it is the function of the physician to initiate. Certain it is that the human body has reached its present stage of perfection through constant exposure to light. In the long drawn ages of human development the body was exposed much more to the action of sunlight than it is to-day. It is a question whether the daily exposure of the nude body for a definite period each day to sunlight or its equivalent, the arc light, would not supply a much needed stimulus to metabolism of which the constant covering of the body with clothes deprives it.

Some of you doubtless recall a book written over thirty years ago by Dr. S. Pancoast, of Philadelphia, entitled "Blue and Red Light." That book amid much that was fantastic contains the germ of modern

light therapy. It made a profound impression upon the laity, but produced little effect upon the conservatism of the professional mind. Under its influence windows were fitted up all over the country with different colored lights. To-day, after the lapse of a generation, the professional mind is turning to light with a hopefulness that springs from a better knowledge of its physiological effects. There can be no question of the ability which light has to produce profound metabolic changes in the human system, and I am inclined to believe that physicians should equip their offices with electric arc cabinets for the purpose of exposing the nude body to that stimulation which the universal use of protective coverings now prevents. We should not wait for the signs of disease to appear, but recognizing that the function of the physician in the future will be rather to prevent disease than to cure it, we should begin at once to introduce in our practice the era of preventive medicine.

ECLECTIC TREATMENT OF RHEUMATISM

BY PITTS EDWIN HOWES, M.D., BOSTON, MASS.

MR. PRESIDENT, GUESTS, AND MEMBERS OF THE THURBER MEDICAL ASSOCIATION

I have been asked by your committee to present to you at this time the "Eclectic Treatment of Rheumatism," and it is with much pleasure that I accepted the invitation.

The time at my disposal is so short that I will confine myself closely to my subject and simply deal with the treatment of this hydra-headed departure from the normal, or healthy standard.

First, however, permit me to state that the School of Medicine which I have the honor to represent does not base its treatment upon names, but rather upon conditions; hence, it will be impossible for me to advocate any stereotyped treatment for what is commonly called rheumatism.

It has also seemed unwise that I should attempt to describe all the remedies that the Eclectic School uses in the treatment of this abnormal condition, consequently, I have decided to ask you to consider briefly with me twenty of the remedies which practitioners of our faith might use together with the particular indications which would determine their usefulness.

As the remedies that I have used most extensively are those known as Specific Medicines, you will kindly understand that the doses given have reference to these preparations, except in the case of various salts. In these my preference is for those of Merck's manufacture.

It is my firm belief that the very best medicines obtainable is what we should use in our endeavors to aid Dame Nature in her efforts to restore

the normal equilibrium in our patients. Many times, more often perhaps than we are ready to admit, our failure to produce the desired results is due to the poor preparations of the drugs prescribed.

Please do not understand that the following agents are the twenty agents always used in preference to others, but that they are possibly more frequently indicated.

Arnica.—The patient that needs this drug will describe a weary feeling of the entire body, combined with general soreness; there is much muscular pain and soreness upon any movement of the limbs. *Dose*: Ten to fifteen drops are added to four ounces of water, and this mixture is given in teaspoonful doses every two hours.

Bryonia.—The pains that indicate the use of this agent are sharp and of a cutting character; the pain is greatly intensified by motion and by joints which are stiff and swollen. *Dose*: Five to ten drops in four ounces of water, and give a teaspoonful from every one to three hours.

Berberis Aquifolium.—This is a remedy that is most useful in chronic cases complicated with a skin affection of long standing, combined with torpidity of the liver. *Dose*: Five to fifteen drops in a little water every three hours.

Citrous Limonum.—The freshly expressed lemon juice is many times a useful adjuvant to other treatment, and its special indication is a mucous membrane that is very red and a urine that is alkaline. *Dose*: Add a sufficient quantity of the juice to cold water to make a pleasant drink, and allow the patient to drink freely until the natural color returns to the membranes.

Colocynth.—Your patient tells you that his limbs feel as if they were bruised, that the pain is more severe when he walks, and are of a sharp, cutting nature. With such a picture you should remember this remedy, and its action, when correctly adapted, will please both your patient and yourself. *Dose*: One or two drops are added to four ounces of water and teaspoonful doses are given every two hours. Do not make the mistake of giving this remedy in any larger doses, as it is the minute amount that is the most effective.

Colchicum.—This is one of the drugs that has served me most frequently. There seems to be a gouty or rheumatic diathesis. The pains are sharp and shooting, passing from the back to the hip and thence down the leg and in most instances follows the course of the nerve. *Dose*: This is an agent that should be pushed when first given to its cathartic effect. As this varies in different individuals, it is wise to commence with a moderately small dose and gradually increase until the desired action is obtained. My plan is to add from ten to thirty drops, according to the natural condition of the bowels, to four ounces of water, and give in teaspoonful doses every hour until the bowels move freely. Sometimes it is necessary to increase the amount of colchicum. This should be done until

the wished for effect is produced, when the remedy should be continued in that sized dose until the patient is relieved of all his pains.

Echinacea.— In cases of chronic character that are complicated by faulty metabolism this drug will prove helpful. It may be given in doses of from fifteen to twenty drops every three hours.

Hyoscyamus.— Many times in cases of acute rheumatic affections with increased temperature you will see much restlessness combined with muttering delirium. Whenever such a case presents itself you will find an admirable remedy in hyoscyamus. *Dose*: Ten to fifteen drops should be added to four ounces of water and teaspoonful doses given every hour till relieved.

Jaborandi.— In rheumatic cases, either acute or chronic, where the skin is dry, the urine scanty, the pulse full and strong, the temperature increased, and severe pain aggravated by motion, this drug will produce beneficial results. *Dose*: Five to ten drops in hot water every one, two, or three hours, according to the promptness of the action desired.

Macrotys.— Whenever the pain is seated in the muscles this remedy is strongly indicated. Your patient will tell you that there is muscular soreness — he feels as if he had been pounded — and you will discover from questioning that the pain is worse upon muscular contraction and is of a deep-seated nature. *Dose*: One to five drops diluted with a little water should be given every one or two hours. Experience has taught that this drug will act better when the trouble is below the waist line. If the pain and soreness are situated above the waist line bryonia will be found the better remedy.

Acetate Potassium. Where you find upon questioning that the pain is more severe upon pressure and the joints are swollen, with a dirty coating on the tongue and torpidity of the kidneys, this salt will prove an efficacious agent. *Dose*: Five to fifteen or twenty grains, largely diluted with water, should be given every three hours.

Potassium Iodide.— In chronic cases of rheumatism where there is enlargement of the glands in various parts of the body with a pale, leaden-colored tongue, especially if there is any syphilitic history, do not overlook this remedy. *Dose*: Five to fifteen grains every three hours.

Potassium Nitrate.— If your rheumatic patient is suffering from an acute attack, and there is excessive tenderness combined with scantiness of the urine and renal torpidity, this salt will produce better results. *Dose*: Five to twenty grains four times a day.

Phytolacca.— Your patient presents himself with affected joints and enlarged lymphatics. The mucous membranes are of a pallid hue and the tongue has the same color, with a dirty coating. This case will improve upon the phytolacca. *Dose*: Add from one half to two drachms of this medicine to four ounces and give teaspoonful doses every two to three hours.

Rhus Tox.— In rheumatic affections, where the pain is increased by warmth and rest, and there is a bright red color in the affected parts, with a tongue that is pointed and of the same color and papillae prominent, combined with a sharp pulse, you ought not to forget the *rhus tox.* *Dose:* Add five to ten drops to four ounces of water and give teaspoonful doses every one or two hours. This is another remedy where the dose must be *small* to produce good results.

Sticta.— The patient that needs this drug will complain of pain in the shoulders, which extends into the back of the neck and occiput; also pain of quick and darting nature in many of the small joints. *Dose:* Fifteen to thirty drops should be added to four ounces of water and teaspoonful doses given every one or two hours.

Thuja.— This drug has proved especially useful in those cases of rheumatism that have an unmistakable syphilitic history, where you find venereal warts or other symptoms of syphilis. *Dose:* Five to ten drops every three hours.

Veratrum Viride.— The strong indication for this valuable agent is stenic inflammation. The pulse will be full and bounding and there is increased arterial tension. Generally you will find a marked red stripe down the middle of the tongue. *Dose:* Ten to fifteen drops in four ounces of water given in teaspoonful doses every one or two hours until the pulse becomes normal in count and action.

Melilotus.— The picture that calls for this drug is rheumatic pain and soreness that seems to center in the hip and extends down the course of the sciatic nerve. *Dose:* Ten to fifteen drops in four ounces of water and teaspoonful doses every two hours.

Apocynum Cannabinum.— This is one of the remedies upon which you can place great reliance whenever you find symptoms of edema in rheumatic patients. Add ten to thirty drops to four ounces of water and give teaspoonful doses every one, two, or three hours, according to the urgency of removing the dropsical effusion.

Benzoic Acid.— If you find the urine of your rheumatic patient strongly alkaline, with a considerable amount of phosphatic deposit, this drug will prove its value. *Dose:* Five to ten grains in plenty of water two or three times a day.

These remedies have proved themselves in my hands during an experience of over a quarter of a century and I am firmly convinced they will do the same for any one else who will take the time and pains to fit them to the exact conditions for which they are curative.

It means work, and plenty of it, to practise medicine in this manner, but the results obtained more than compensate for the labor.

DEPARTMENT OF DIETETICS

SUGAR IN ITS RELATION TO INFANT FEEDING

By J. A. DENKINGER, M.D., BOSTON, MASS.

Continued from page 184.

SYMPTOMS REFERABLE TO SUGAR INDIGESTION

Eructation of gas and regurgitation of sour, watery material, accompanied by sour breath, and sour odor of clothing, constitute a group of very frequent signs of sugar indigestion. Vomiting of very acid stomach contents, while often due to excess of sugar, is more frequently due to other causes such as too frequent feeding, too much food at one feeding, or food too rapidly taken.

An excess of fat in the food is also a frequent cause of vomiting. If the vomiting is due to excess of sugar, it is usually accompanied by considerable belching up of gas; it is also more frequently caused by cane sugar than maltose or lactose.

Excess of sugar, especially of cane sugar, promotes an excessive flow of mucus from the gastric glands and hyperacidity of stomach contents due to the secretion of an unusually acid gastric juice, which interferes with normal digestion and is largely responsible for abnormal gastrointestinal fermentation.

COLIC (WIND COLIC)

Colic, usually signalized by sharp cries on part of the infant, whose legs are drawn up to a rigid abdomen with evidence of considerable abdominal pain, relieved by belching up of gas and the passing of wind per rectum, constitutes one of the most frequent symptoms of indigestion. It is generally due to fermentation or decomposition of food in the stomach or bowels and may be due to too much food or to one or more of the principal food elements. Excess of carbohydrates (starches and sugar) is undoubtedly responsible for colic in a large percentage of cases, but colic is more often due to an excess of proteid or an indigestible form of proteid, as shown by the lumps of casein in colicky stools. If colic is due to excess of sugar, it is usually cane sugar, colic due to maltose or lactose being much less frequent. Sometimes, but not often, colic is due to an excess of fat in the food.

FLATULENCE

Flatulence, the usual accompaniment as well as cause of colic, is another frequent if not the most frequent symptom of abnormal gastrointestinal fermentation traceable to excess or poor absorption of carbohydrates, both starches and sugar. Starch is particularly liable to produce an excess of gas even more so than sugar, but we must not lose sight of the fact that an excess of proteid also, as well as too much food, causes flatulence as well as colic.

THE STOOLS IN SUGAR INDIGESTION

The abnormal fermentation of sugar results, as stated before, in the production of an excess of irritating organic acids, and gases, which distend the stomach and bowels, excite peristalsis, irritate the intestinal mucosa, and cause an increase in the number of stools, thin and diarrhoeal in type, very acid in reaction, as well as sour smelling, but devoid of the putrid odor peculiar to the decomposition of proteid material. These acid stools produce irritation of the buttocks and around the anus and on the inner portion of the thighs, sometimes causing only redness, giving the parts a scalded appearance, at other times causing erythema and even eczema. In point of color, the stool is frequently, but not always, green or greenish at time of passing, sometimes resembling chopped spinach, and in other cases scrambled eggs, but it should be noted in the connection that the green or yellowish-green stool is more frequently indicative of excessive fat feeding. According to Koplik, this stool is also seen when the proteids are at fault. The stool more characteristic of abnormal carbohydrate fermentation than the green or greenish stool is the watery, frothy, foamy stool, containing numerous air bubbles giving it frequently a sponge-like or honeycomb-like appearance. Mucus is also a frequent accompaniment of the stool, which is moreover very acid in reaction and has a markedly sour odor. On account of its watery character, this stool is called by some writers as the splashy stool.

The Czerny-Keller Clinic demonstrated that although all sugars when ingested in excess tend to the production of fluid stools, more or less acid in reaction and odor, cane sugar, dextrose, and levulose resulted in more acid stools than maltose and lactose. As to the more general effects of excessive sugar feeding in artificially fed infants. Restlessness, uneasiness, gradual loss of appetite, and increase of thirst as well as of temperature are early symptoms of excessive sugar feeding. Later, the face becomes pale (anemic) with a peculiar, transparent, putty-like appearance of the skin. Too much sugar or other carbohydrate material in the diet also tends to develop a large, heavy, but generally flabby child, marked by muscular weakness, a too rapid increase of weight without proportionate increase of strength.

With the metabolic disturbances caused by sugar indigestion comes a greater liability to catarrhal conditions, bronchitis, croup, and pneumonia. Other untoward effects of excessive sugar feeding are headaches, the so-called "sugar" headaches and "bilious" attacks.

Kerley, whose opinions are always interesting, recently read a most suggestive paper on the subject of "carbohydrate incapacity" in young infants and children. According to Kerley, the systemic manifestations of sugar incapacity include irritability, scalding urine, and eczema, but the most common manifestation of sugar poisoning consisted in a persistent hyperemia of the mucous membrane of the upper respiratory tract. Recurrent rhinitis, tonsilitis, and bronchitis were most frequent in sugar susceptibles. Children with eczema, frequent urticaria, rheumatism, and recurrent vomiting, he found, had very poor sugar capacity. He mentions the case of a boy six years old who suffered from persistent urticaria and eczema, all of which was relieved by removing sugar absolutely from the diet. Kerley considers that the consumption of large quantities of sugar by the growing portion of our population is one of the great dietetic errors of the day. In the discussion that followed the reading of Dr. Kerley's paper, Dr. Freeman expressed himself to the effect that many colds of infants and children are due to indigestion, and excess of sweets is at the bottom of the indigestion.

RELATION OF EXCESS OF SUGAR IN THE INFANT'S DIET TO RACHITIS

A number of writers have charged that the excessive use of sugar, especially when combined with an insufficiency of fat in the diet of artificially fed infants, is largely responsible for rickets, but, in the opinion of our best authorities, the cause of rickets is still unknown. No doubt, abnormal metabolism plays a large part in the etiology of this disease and an excess of carbohydrates along with low fats and low or poorly utilized proteids may at times result in metabolic changes tending to the production of rachitis, but judging from clinical histories of cases of rickets, they are neither the sole nor the leading factors in its production. Recently, Siegert "found" high fat feeding a causative factor in producing rachitis. In another recent article on the etiology of rickets, Findlay (*British Medical Journal*, July 4, 1908) claims that food has very little to do with it, but that it is largely due to the effects of deprivation of exercise. In rheumatic infants it is advisable to keep sugar low; the same applies to infantile eczema, although this disease is more frequently caused by over-feeding resulting in auto-intoxication.

TREATMENT OF SUGAR INDIGESTION

The treatment of sugar indigestion is usually as simple as it is effective, in mild cases requiring rarely more than a reduction in the amount of

sugar used. In severe cases it may be necessary to "cut out," temporarily at least, all of the extra sugar usually added to milk. Sometimes a change from cane sugar to maltose or lactose, or from lactose to maltose is sufficient.

If nothing is done to check the symptoms of sugar indigestion, more serious symptoms of alimentary (sugar) intoxication are certain to follow. There is then no question that an excess of sugar is frequently injurious to infants and children. It is undoubtedly ruinous to normal appetite and in gastro-intestinal diseases and cases of "sugar incapacity" (Kerley) even a moderate quantity of sugar may give rise to serious digestive and other nutritive disturbances.

VALUE OF SUGAR WHEN USED IN MODERATION

On the other hand, most infants crave and relish sugar and sweets, and it cannot be denied that used in moderation it usually agrees with them, and is in many ways well adapted to them. Certainly sugar is the greatest source of heat and energy, and is to most people much more agreeable, digestible, and assimilable than fat, besides being much cheaper. On account of the ease and rapidity with which it is absorbed and oxidized, it is a far more quick-acting body fuel than starch or fat. As has been pointed out by a number of authorities, the small organism of the child loses more heat from the skin for every pound of body weight than the adult, and children on this account, and also because of their more active life, require proportionately more heat units in their food than adults. Fats, especially fat meats and butter, readily supply this need, but are often disliked by children, and their craving for and relish of all kinds of sweets has doubtless a physiological basis.

Sugar is without doubt one of the most useful and valuable of foods and its use is increasing enormously. In 1822 the consumption of sugar in this country per capita was only nine pounds, in 1900 it rose to sixty-five pounds, in 1906 to seventy-six pounds, and in 1907 to eighty-two and six tenths pounds per capita.

EFFECT OF DEFICIENCY OF SUGAR IN THE DIET OF ARTIFICIALLY FED INFANTS

The infant is usually poor and thin, there is a want of bodily heat and vitality, with failure to gain in weight. Constipation is frequent. Failure to gain in weight calls for an increase of calories, through increase of carbohydrates (starch and sugar) or fat, more frequently the former, and preferably in the form of maltose, or the maltose-dextrin mixtures constituting the so-called malted or Liebig foods, as will be shown later.

(To be continued)

THE MEDICAL ROUND TABLE

MACROTYS

The study made of macrotys (*cimicifuga racemosa*) by The Eclectic League for Drug Research, defines its apparent specific field as follows:

- (1.) Myalgia and all painful muscular conditions the result of improper excretions.
- (2.) Nervous conditions the reflex from certain muscular organs.
- (3.) Certain subacute nervous and mental states resulting from a disturbed circulation of the brain.

Most all of the primary diseased conditions in which macrotys acts best apparently arise from a disturbance in the excretion of certain products of metabolism yet to be defined. Acute rheumatic myalgias the result of "colds"; rheumatic fevers (with the proper sedative for the febrile state); and the uterine muscular pains, apparently all result from the same state of the bodily fluids.

The secondary reflex nervous diseases may arise from the heart, the uterus or any muscular tissue. The chorea relieved by macrotys seems to be of this type, although the drug apparently also directly affects the central organs, as evidenced by the dizziness, nausea, palpitation, and mental perturbation to which it gives rise.

All reports recommend its use in as large a dosage as can be borne by the patient, ceasing its administration when untoward signs appear.

Its nature is sedative, and Dr. Ellingwood recommends that this be augmented as indicated by *Gelsemium* or *Scutellaria*, or as Dr. Scudder has recommended, by *aconite*.

Dr. A. W. Smith, Chicago, relates an interesting case of a woman aged twenty-five years suffering from chronic hyperplasia of the uterus, with all its reflex symptoms. After exposure to inclement weather a severe tonsillitis arose, which the ordinary remedies, in over a week's use, failed to relieve. Noticing the similarity of the symptoms to a case of rheumatism, he administered macrotys with marked relief and speedy cure. A feature was the subnormal temperature, following the use of the previous drugs and which macrotys remedied.

In a recent case of tonsillitis in my own practice, macrotys with *aconite* gave one of the quickest cures I have ever had in this disease.

Other suggestions reported were its use in *phthisis pulmonalis*, combined with iodine, false pains, *la grippe*, and various well-known uterine wrongs.

Dr. V. A. Baker, Michigan, suggests its use in the irritable bladders of either sex, and one report mentions it as a sexual tonic to both sexes.

— *W. Leming, M.D., Lexington, Ky.*

THERAPEUTIC NUGGETS

SOME HEADACHE REMEDIES

Spec. Med. Avena Sativa.—The patient requiring this remedy will complain of a headache which seems to center in the occipital portion of the brain, especially those patients who are suffering from neurasthenia. It will also prove advantageous in sick headaches where the pain is of a burning character, and is centered upon the top of the head, particularly if this condition is present during the menstrual period. *Dose:* Add $\text{ii}\overline{3}$ to $\overline{3}\text{iv}$ of water and give drachm doses every two to three hours.

Spec. Med. Cactus.—Your patient that needs cactus will present the picture of nervousness; there will be pain in the top of the head, but the burning of avena will be absent. Cardiac disturbance is almost always in evidence. This remedy is exceedingly useful in headaches which occur during the menopause. *Dose:* xx to xxx gtts. should be added to $\overline{3}\text{iv}$ of water and drachm doses given every hour or every two hours.

Spec. Med. Guarana.—In headaches, with pallid face and slow pulse, especially if the pain is aggravated by motion, the guarana will prove useful. It may also be used in the headaches which occur after dissipation or excess of any kind, unless there is undue excitement. If this is present the Gelsemium is preferable. *Dose:* From one to ten drops in water repeated every one, two, or three hours.

Spec. Med. Cypripedium.—In those nervous headaches that are accompanied with feeble pulse, cold extremities, and a pallid face this drug will prove curative. *Dose:* Five to ten drops doses may be prescribed every one or two hours.

Spec. Med. Hyoscyamus.—This drug is a valuable one in those cases where it is indicated. There will be symptoms of cerebral excitement combined with much restlessness. Insomnia that is induced by worry is another useful pointer for the using of this agent. *Dose:* Add gtts. xv to gtts. xxx to $\overline{3}\text{iv}$ of water and direct your patient to take teaspoonful doses every one or two hours until relieved. Some bad cases will require the smaller dose every half hour.

Podophyllin 2x.—When your patient tells you he is dizzy, with a heavy feeling in the head and shows you a tongue that is full and covered with a yellowish coating, particularly at the base of the tongue, and complains of a full feeling over the abdomen, three grains of the 2x trituration of podophyllin given every two hours will soon produce a marked improvement.

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EDITORIALS

OUR LAST ISSUE

While it is not the policy of this JOURNAL to fill its pages with the expressions of praise which are continually being received from gratified subscribers, yet we cannot refrain from noticing the many compliments given us upon the contents of our April issue. To one and all who have made these pleasing statements we wish to extend our hearty thanks.

The meeting at which those papers were read was certainly a step in the right direction, and it would benefit the practice of medicine to a very large degree if more such gatherings might be held all over the country.

While I do not believe in the amalgamation of the various schools, yet I am heartily in accord with the representatives of the different methods of practice, getting together and comparing notes.

There is some good in all modes of curing disease, and no one system can boast that there is no error mixed up in its tenets.

The comingling of the physicians of the several schools would have

a tendency to broaden the practice of medicine and each would have a greater respect for the other.

The local medical society is the place where such interchange of views should take place. We hope to live to see many such meetings reported.

SIGNS OF THE TIMES

In some states applicants for a license to practise medicine are now exempted from examination in therapeutics, this no longer being considered an essential subject. Now let us have ministers exempted from the study of the Bible, lawyers from a knowledge of Coke and Blackstone, teachers from the ability to impart instruction, and journalists from the obligation to get the news, none of these being any more essential in their several spheres than a knowledge of therapeutics to the doctor.

An eminent surgeon was recently expressing to a company of medical men his idea of the importance of making an accurate diagnosis preparatory to operating on the kidneys. "But," said a young doctor, who was standing by, "what is the use of spending so much time in making out a diagnosis beforehand? The operation will settle the diagnosis." To which the surgeon replied, "Yes, it is true that the operation will usually settle the diagnosis; and frequently it will also settle that the operation was entirely unnecessary."

Certain "organization" medical journals advocate the boycotting of those manufacturing firms which do not advertise in their columns. This is the way one of them puts the matter:

"If the drug and chemical houses could be made to realize that the cheapest, quickest, best, and surest way of getting before the medical profession is to advertise in the journal, they would all be breaking their necks to get space. The way to make them realize it, brother members, is to tell their salesmen when they enter your offices that they need not ask you to use their preparations if they are not willing to use your journal as an advertising medium."

And yet these journals put on airs of virtue, and look down on the independent journals. But who ever heard of an independent journal taking to the highway and holding up passersby in this shameless manner? The best thing that an independent journal can do to increase its advertising patronage is to make itself so interesting and helpful that the doctors will read it — and then the advertisers will find it worth while for them to patronize it.

And now the Council of Pharmacy of the A. M. A., composed, it is

said, of pharmacists, specialists, and retired physicians, with not an up to date practising physician in its membership, advocates restricting physicians to the use of the U. S. P. and N. F. preparations, with such proprietary remedies as have been favorably reported on and "passed" by the Council. Surely, if these things go on, the doctor will have very little to do with his patient. He cannot dispense any medicines, he cannot take a prescription to the druggist, and he cannot prescribe anything not approved by the Council and advertised in the "organization" journal. But wait a little. The general practitioners, the real doctors, are not all dead yet. They will be heard from in due time.

And still the anti-vacs. In a Massachusetts town of twelve thousand inhabitants the Central Labor Union decided to secure the services of an English anti-vaccination agitator, whose services were proffered free of charge, to enlighten the public on the evils of vaccination. They extended an invitation to the local medical society to attend, inviting them to meet the speaker in open debate as a body, and answer his arguments or to furnish some person to answer for them, as they might desire, frankly admitting that the laboring men as a rule believed in vaccination. But the local society replied that they were facing to the front, and had no time to waste in fighting dead issues. The meeting was widely advertised, and was held on a Sunday afternoon, a time supposed to be most favorable for the attendance of workingmen and their families. The number of persons in attendance, by actual count, according to a local paper, was twenty-two. It looks as though the local medical society decided wisely.

If any one doubts that there has been a revival of interest in drug therapeutics, let him hunt up a file of his favorite medical journal ten years old — any journal devoted to general medicine — and go through its columns for the year, counting up the number of articles devoted to the therapeutics of the different drugs. Then let him take the same journal for the year 1908, and go over it in the same way. The result will surely prove to him that there is a very different state of mind on the part of the medical profession as to the comparative importance of these subjects, from that which existed only ten years ago.

J. M. F.

Cast forth thy act, thy word, into the ever-living, ever-working universe; it is a seed grain that cannot die unnoticed to-day, it will be found flourishing as a banyan grove, perhaps, alas! as a hemlock forest — after a thousand years.

— Carlyle

DEPARTMENT OF THERAPEUTICS

AN IDEAL REMEDY IN DIARRHOEAL DISEASES

BY E. G. WHINNA, M.D., PHILADELPHIA

Physician to the Philadelphia Home for Infants. Assistant Ophthalmologist to the West Philadelphia Homeopathic Hospital and Dispensary. Medical Inspector of Public Schools, Philadelphia, Pa.

As physician to the Philadelphia Home for Infants for the last fifteen years, my attention has been frequently called to the ætiology and especially to the treatment of infantile diarrhœas. In an institution of this character, where large numbers of children are gathered together, the prevention and treatment of such disorders becomes especially important.

The children are taken into the home between the ages of three months and three years, and in the majority of cases the problem of artificial feeding has to be met and solved, as in very few instances can the maternal supply of nourishment be continued, the mother either being dead or finding outside employment. Thus it may be seen that we have to contend with these cases just at the time (weaning) and age (three months to two years) when they are most susceptible to gastro-enteric disorders. The simple act of weaning, if done suddenly, is almost certain to be followed by an attack of diarrhœa.

We may divide the causes of diarrhœal diseases in infants into predisposing and exciting. Under the head of predisposing we might mention age (under three years), improper hygiene, a weak or enfeebled constitution, and any disorder of digestion caused by improper methods of feeding or the use of improper foods. The exciting cause is something for the production of which two things are essential, heat and artificial feeding. The longer I practice the more I am becoming of the opinion that the causative elements in the great majority of cases of diarrhœal disease are some of the various forms of bacteria or their resulting products. As the Scriptures say, we should give "a reason for the faith that is within us," and this I will endeavor to do. It is usually in the warm weather, when the temperature is over sixty degrees F., that these diseases prevail epidemically, and this is the temperature at which decomposition begins and bacteria multiply freely. Lack of cleanliness of person, food, or bottles, which we all know is a prolific cause of diarrhœa, is also a helpful agent for the propagation of the bacteria. By the frequent handling of the milk which it undergoes in its transition from the dairy to the nursing bottle, bacteria find ready access to it, and the milk is often allowed to stand for

hours at a time at a temperature sufficiently high for bacterial growth to occur. The normal discharges from an infant's bowel contain a number of bacteria, the most important of which are the bacterium lactis, ærogenes, and the bacterium coli communis; the former lives in the upper part of the bowel and excites the fermentive process in milk; the latter is found mostly in the lower part of small intestine and in the colon, and has some influence on the digestion. In diarrhœa the number of bacteria found in the stools is enormous, as many as forty different varieties having been isolated. There is no class of diseases in which so much can be done in the way of prevention as in those of the gastro-intestinal tract. With this end in view, we should get as many children out of the city in summer as is possible, sending them to the seashore, country, or mountains; or, when it is impossible for them to make protracted visits, short trips on the river, or even sitting on the river wharves in the evening, will be beneficial. The parents or attendants should be taught the importance of regularity in feeding, the danger of overfeeding, and what constitutes a proper diet for infants. Great care should be taken regarding the transportation and sale of milk; all germs should be excluded or destroyed by sterilization of the milk and scrupulous cleanliness of bottles and nipples.

In warm weather the amount of food should be decreased and the amount of drinking water increased. Prompt attention should be given to every derangement of the bowels, no matter how trivial it may appear. Dietetic and hygienic treatment in these diseases is as important as the use of drugs. Any sensible treatment will begin with an inquiry as to its cause. If found to be dependent upon faulty food or improper methods of feeding, these evils must be corrected. If this is done, spontaneous recovery usually takes place and medication will not have to be resorted to long; whereas if the evil be kept up the case will continue in spite of the most accurately selected medication. It is important to remember that during the acute stage of diarrhœa the digestion is practically arrested. In nursing infants the breast must be withheld as long as the inclination to vomit continues, and the thirst can be allayed by the administration of barley or toast water. After the stomach has been quiet for eight or ten hours, nursing can be gradually resumed, making the intervals between longer and the duration of the nursing shorter than ordinary. In infants recently weaned the same abstinence is to be enforced, and a return made to the breast if possible. In hand-fed infants, where a wet nurse cannot be procured, we must endeavor to secure the artificial food best suited to the individual case. In these cases milk should generally be withheld until the acute stage has passed, and animal broths, egg water, etc., given in its place. After the question of feeding has been settled to the best of our ability, we think of medication. The first indication is to empty the stomach and bowels of the fermenting masses that

are causing the trouble. Usually the vomiting of the child is sufficient to empty the stomach; where, however, the vomiting is ineffective and but little is ejected, stomach washing may be tried. To empty the intestines is indicated in every case, and this may be accomplished by cathartics (castor oil and calomel) for the small intestine and by irrigation for the colon. The next step is to combat the process of decomposition by intestinal antiseptics and by proper food.

The drift of opinion for some time has been toward the use of drugs which check the growth of bacteria, and the drugs which can be relied upon to influence decomposition in the lower ilium and colon must be insoluble. Those drugs which have this reputation are naphthalin and bismuth. In my experience at the home and in private practice I have tried various drugs with varying success; but it has only been recently that my attention has been called to a remedy which I have been surprised and delighted to find acts as nearly as a specific in these cases as any drug can do. I refer to betanaphthol-bismuth. This preparation contains eighty per cent of bismuth oxide in chemical combination (not simply a mixture), with twenty per cent of betanaphthol.

In the intestinal canal the combination is broken up into naphthol and bismuth; most of the naphthol passes off through the kidneys, while the remainder, with the bismuth, is excreted through the bowel. The therapeutic effect is twofold: First, as an antiseptic, preventing the growth of bacteria, and, second, as an astringent, on account of the presence of bismuth.

The dosage varies according to the age of patient and severity of the attack. For adults, twenty to eighty grains can be given daily in doses of five to ten grains. For children the dose is two to five grains, best administered in cold water or some simple syrup, and repeated as often as may be necessary.

AN EXPERIENCE WITH AN ENLARGED LYMPHATIC

BY JAMES R. PHELPS, M.D., DORCHESTER DISTRICT, BOSTON, MASS.

In the course of a conversation with a valued friend, whose methods of thought lead him deeper beneath the surface of things than many care to delve, he remarked: "I am certain that there is not an anti-toxin in the world that is not hidden somewhere in the human body. The trouble is we either ignore or disbelieve this fact, or we do not know how to awaken and direct its energy. If we possessed this knowledge, or did not forget its application just when most needed, we might handle confluent smallpox as safely as birch bark."

I thought this idea over considerably, for I have long believed that everything in nature has its antagonist, and that every known or possible disease has its remedy if we knew how to look for it and apply it. Perhaps the time may not be far distant when we shall cease our wild chase after coal-tar synthetics, and see what God, through operations of Mother Nature, has brought under our hand among the *living* principles of plant life, as evolved by men like Lloyd and Burggraeve. Of course my remarks are addressed to believers in the (supposed) exploded science of therapeutics, for it would seem that Isaiah had a vision of these days when he wrote: "This people hath refused the waters of Shiloah, that go softly." The fragrant little wintergreen, so plentiful in our northern states, has no chance in the modern pharmacy with its poisonous synthetic coal-tar imitator.

But it is not my purpose to write a condemnatory critique on our U. S. P. While Lloyd and Merrill and Squibbs carry on business, pure plant derivatives can be obtained, even if one has to jump over the head of the corner soda and cigar divan. But to my story, which I will tell plainly.

For some three years my wife has been troubled with a virulent eczema of the right leg. Last summer, while boarding a street car, she struck her leg just midway between the knee and foot, which caused a deep ulcer to form. The middle of December I concluded to send her to bed until some improvement could be effected, and I went to work on it with ten per cent resorcin ointment with white petrolatum base. The improvement was marked from the beginning, and after the growth of an entire new skin I finished it up with a dusting powder called "Modoformal," which I obtained from Armstrong Manufacturing Co., of 78A Broad Street, Boston. Common justice compels me to say that I never saw its equal.

Well, during the summer and fall I had exhausted my vitality by overwork, and was in no condition to endure the burden that fell on me. The housemaid went away for the Christmas holidays, and I could get no one temporarily. So I had to be cook, doctor, nurse, scullion, and everything except washerwoman.

One day I got a small splinter in my thumb, which I pulled out and paid no further attention to, and I kept on rubbing the resorcin on the eczema three times daily. In a day or two a small pimple, about the size of a pinhead, that would not heal, appeared on my thumb, but I did not pay much attention to it. A week after Christmas the girl returned, and the next morning I found a hard, painful bunch under the axilla, as large as a hen's egg and hard as leather. My first thought was that I had strained the serratus magnus, and I used an old forgotten remedy which I have found very useful — Fenugreek. It accomplished no good, and

acting on the suggestion of my wife that "a lawyer who conducts his own case generally has a fool for a client," I called in my friend, Dr. W——. He examined it and pronounced it a deep-seated enlargement of the lymphatic gland, and said the only course was to poultice it and bring it to a head. Then he spied the pimple on my thumb and pronounced it the whole cause of the trouble. Surely "great oaks from little acorns grow."

For three days I used flaxseed poultices, and no sign of softening. But the thing began to decrease in size, and I telephoned Dr. W—— to call. He coincided with my opinion, that the thing was going to work off by absorption, not a pleasant anticipation, by any means, but what could one do? And then I began to understand the "ministry of pain," for the pectoral muscles were so sore that I could hardly draw a breath. Dr. W—— said "paregoric," and paregoric it was, although I despise opiates. And the constriction about the larynx was horrible. Still all through the whole affair there was not a hint of fever, so my ever present Abbott defevescent granule was not invoked.

The next indication was urine loaded with bile, showing that the urine had got at work on the liver. And then one evening I had a fit of nausea, and after depositing my frugal supper in the bowl, I followed it with a volume of bile. I thought this was all, but it was soon followed by a compound for which I have no name, and don't want any. The next morning Dr. W—— appeared and found the swelling nearly gone, and advised application of iodine to finish it up, syrup hypophos. comp. U. S. P. as a tonic, and sodium phosphate three times a day to clear the liver, instead of podophyllin and leptandrin, which I was using. This latter salt made me pause, for I have seen specimens of this salt containing enough arsenic to make its use dangerous, not that arsenic is used as an adulterant, but not enough care is taken to eliminate the poison. But on taking down my Squibbs's *Materia Medica*, I found that they made a preparation of guaranteed purity, and the guarantee of that house goes with me. Their products cost more than some others, but cassimere costs more than satin, and I will have Squibbs's or Merck's if I have to send to the home office for them.

Well, I don't know that I have added much to the world's knowledge in this article. I have cured similar cases in three days by driving a solution of iodide of lithium into the gland with a galvanic current, and using eliminants. This case of my own lasted me five weeks, probably owing to the fact that I was run down, and an old chap of seventy-one is not always wise. At least, if he is, he does not understand exactly how to apply his wisdom.

I am fast gaining by the use of a constructive which I find invaluable — Abbott's triple arsenates with nuclein, No. 413. I don't know how you will regard the free advertising I have been sandwiching into this article,

but you can cut it out or send the bill to the proper parties. I have only endeavored to give a succinct account of a case in which, for obvious reasons, I was much, perhaps painfully, interested.

I would like to say one word regarding "Fenugreek" (*Foenum Graecum*), which I mentioned at the beginning of this article. It was brought to my notice a year ago by an old German, a follower of Father Kneipp. I hunted it up in my botany, but could find no mention of it. Finally in an English work in the public library I found an exhaustive description of it, with the information that, while formerly in great repute with European practitioners, it had fallen into disuse except among veterinarians, who used it largely for spavin and ringbone. I reasoned that if of value in these conditions, it might be of use in other abnormal deposits, and I set about looking for it. But the druggists never heard of it, as I could learn, until I inquired of one of our Dorchester druggists, who told me that he sold large quantities to veterinary doctors. Meantime I had got some from an obscure house in New York City. The first trial I made of it was in a case of goiter, with marked effect, and for sprains it is a fine remedy, and I consider it a forgotten remedy that may well be remembered. It resembles in odor pulverized slippery elm. I mix it with vaseline into a stiff paste, and use as I would a poultice, and my experience with it leads me to further experiment with it. Some years ago a queer old chap in this city had great success in curing sprains, and I have questioned if this powder was not an important factor in his practice.

— *The Medical Summary*, March, 1909.

NECROSIS OF THE CERVICAL VERTEBRÆ

By T. D. LYON, M.D., NEW YORK CITY.

AMONG the different forms of necrosis of the bony frame work of the body, the following herewith reported is so peculiar that it can but prove of interest to the profession.

I cannot recall any mention of a similar lesion in medical journals, nor in the different works on surgery.

L. McC., aged forty, oysterman, family history so far as could be ascertained gave nothing that indicated the cause of malady. His brothers then living were in good health. His parents, both deceased, died of pulmonary congestion, at an advanced age. He had never passed through any protracted illness.

At the date of my first visit, which was made in consultation with Dr. J. E. Ellis,* he had been confined to his chair for a period of six weeks.

* Since deceased.

The recumbent position was unbearable — causing intense agony on the least change of position of head.

I found him propped up in a chair supported by blankets and pillows.

The left side of body paralyzed from the cervical region to the toes, facial muscles were not involved. Conscious of pain and could answer coherently. For about two weeks prior to his confinement to house, and while engaged at his occupation, he experienced pain of an intermittent character, radiating from the base of the brain and extending to the upper cervical region down to the shoulders. Slight rigors at intervals. There had been no temperature of more than 100.5 Fahr. during his illness.

The different physicians consulted prior to our attendance had treated him for rheumatism, neuralgia, malaria, and carbuncle.

The latter diagnosis (made two days prior to my first visit) was, no doubt, influenced by a small tumor located over the upper cervical vertebrae. Said swelling gave a semi-elastic feeling to the touch. There was no pain manifested where firm pressure was made, but the least *rotation* of head caused intense agony.

Deglutition difficult, but fluid nourishment was taken in small quantities. His general condition slowly became worse, and he finally succumbed to the interrupted heart action and exhaustion.

After much persuasion the family consented to let us do a limited autopsy. I say limited, as we were restricted in our examination to the cervical region only.

Making a crucial incision through the tumor and well into the tissues there issued from the cut a few drops of pus.

Carrying the dissection carefully into and around the neck the following lesions were revealed: Both the atlas and axis were found necrossed. The necrotic process had rendered fragile and destroyed the whole left sides of said vertebrae, as well as the odontoid process, and this breaking down of the bony framework, together with softening and disintegration of the ligamentous connections permitted the remaining parts of atlas with the skull to become dislocated laterally, impinging and pressing the cord against the lower vertebrae, thus explaining the hemöplegia and other conditions presented.

A careful examination of the body externally failed to show any scars or lesions of a glandular or specific nature.

And, while I am inclined to declare the injury was the result of syphilitic poisoning, I could not form any conclusion by the most persevering inquiry.

Acids.— A deep, red tongue and mucous membranes with a dry brown coating, sordes on the teeth, and pungent heat of the skin indicates that the system needs an acid. Muriatic acid is the one most frequently given. Add \mathfrak{z} i to Aqua \mathfrak{z} iv, and give in teaspoonful doses every two or three hours as long as the indications for its use are present.

PHYSICAL THERAPY

FIRST STEPS IN MEDICAL ELECTRICITY

BY HERBERT MCINTOSH, A.M., M.D., BOSTON, MASS.

PART II

CHAPTER 1. DISEASES OF WOMEN

URETHRAL CARUNCLE.—When pedunculated this growth may readily be removed by means of a hot wire snare after thorough anesthetization by means of four per cent cocaine carried into the tissues by anodal diffusion. If the growth is sessile, it may be detached by negative electrolysis, a flat needle being carried through the base of the tumor close to its attachment until it is wholly removed. If after these procedures the area of attachment seems somewhat elevated, it may be touched by a copper electrode attached to the positive pole. The characteristic green color immediately appears from infiltration of the tissues with the salts of copper. Small currents ranging from two to eight milliamperes are sufficient for these procedures. The electrical treatment of these annoying growths has many advantages over surgery, among which may be noted the absence of hemorrhage and the avoidance of general anesthesia.

AMENORRHEA.—*Direct Current.*—The patient should lie upon a large pad about twelve by twenty inches square. A smaller pad should be carried alternately from the epigastrium to the hypogastrium, and a current of from 50 to 75 milliamperes carried through the abdominal and pelvic plexuses. This may be followed by an induction current treatment from the primary coil. This treatment, combined with the usual hygienic and medicinal regimen will usually restore the suspended function.

The foregoing method may be employed when, as in the case of virgins, it is deemed undesirable to make a vaginal examination. The following method is much more efficient in restoring normal menstruation.



Fig 1.

A suitable electrode (Fig. 1), being a copper ball upon an insulated stem, is covered with well-moistened cotton and placed in the posterior

vault of the vagina. It is then attached to the negative pole of a constant current battery and a current of from twenty to thirty milliamperes passed for ten minutes three times weekly for the three weeks preceding menstrual flow. The positive pole is a large abdominal pad. A still more active effect may be secured by the use of a uterine instead of vaginal electrode. (Fig. 2.)

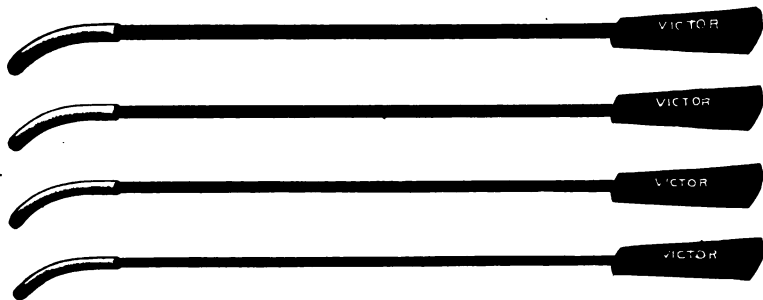


Fig. 2.

Electric Bath.—Less efficient, but also useful in restoring the catamenia is the electric bath.

Induced Currents.—Dr. Mundé regards induced currents, carried into the uterus by means of a suitable electrode, of great value in restoring menstruation. Two or three treatments a week, lasting from twenty to thirty minutes, may be continued for a number of months. He has proved this treatment of particular value in obese women.

SCANTY MENSTRUATION. *Direct and Induced Currents.*—Where there is a reduction of the monthly flow in mature women, the introduction of the negative electrode into the uterus, as above described, is attended with the happiest results. This may be alternated with the induced current, the cerebral fulness and discomfort characteristic of this condition quickly subsiding with the restoration of the menstrual function. The other methods of treatment suggested under amenorrhea are applicable.

DYSMENORRHEA.—We shall not attempt to conform closely to the usual classification of dysmenorrhea into obstructive, congestive, neuralgic, ovarian, and membranous, since these types tend more or less to overlap. Where malpositions produce obstruction to the flow of the menstrual fluid, they must, of course, be first corrected. When metritis and endometritis are the etiological factors they must likewise receive attention. In like manner ovarian involvement may share largely in the production of painful menstruation and demand previous treatment.

We shall, therefore, consider at this point those types of dysmenorrhea which are due: (a) to an undeveloped or so-called infantile uterus characterized by a long conical cervix and a small fundus about as large as an English walnut and almost lacking in muscle fiber; (b) to atresia or stenosis of the cervical canal; (c) to the expulsion of an organized mem-

brane at the menstrual period; and (d) to excessive congestion at the menstrual epoch.

The conditions associated with the classical types of dysmenorrhea are properly treated under other heads.

INFANTILE UTERUS. *Direct and Induced Currents.*—A small metal olive mounted upon an insulated staff (Fig. 3) is attached to the negative pole of a constant current battery, the positive pole being attached to a large pad placed upon the abdomen, a current of about five or ten milliamperes being allowed to pass. This enters readily under the influence of the current, which renders the tissues soft and slippery. The direct current is now turned off and, for the purpose of developing the muscular tissue of the fundus, a slowly interrupted induced current is switched on. Larger olives are successively introduced by the assistance of the direct current when necessary, and employed to furnish induced current massage to the undeveloped uterus. When the canal is sufficiently enlarged, the direct current is no longer employed. By such methods a uterus may be



Fig. 3.

quickly enlarged from a depth of one and one half to two and one half inches.

ATRESIA OR STENOSIS. *Direct Current.*—Where atresia or stenosis of the cervical canal exists, producing a real obstruction to the passage of the menstrual fluid, the treatment is directed toward the removal of the stricture. That such a narrowing of the passage exists apart from the flexions of the uterus has been denied, inasmuch as it has been shown that during the pains of a so-called obstructive dysmenorrhea the uterine sound could be easily passed. When, however, such narrowings occur from whatever cause, they may readily be relieved by the introduction of properly graduated sounds attached to the negative pole of the direct current battery. The caliber of the canal having first been ascertained, an olive-pointed electrode (Fig. 3) about two sizes larger is introduced and pushed against the resisting area. A current of about five milliamperes may be employed, when the electrode will pass through the ring almost without pressure. The operation may be repeated in five or six days with a larger electrode. The indifferent pole is a small pad upon the abdomen.

MEMBRANOUS DYSMENORRHEA. *Direct Current.*—The indication here is to soften the hardened membrane so that it may not be thrown off as a large mass, but by a softening process undergo a gradual degeneration. This

may be accomplished by introducing an intrauterine sound having a metal tip about one and one quarter inches in length mounted upon an insulated staff (Fig. 2). This is attached to the negative pole of a constant current battery, the positive to an abdominal pad. A current of thirty milliamperes may be employed and continued for from eight to ten minutes. The treatments may be given twice a week, until the arrival of the next menstrual period.

CONGESTIVE DYSMENORRHEA. *Static Wave Current.*—For a congestive dysmenorrhea due to a simple excess of physiological activity at the menstrual epoch, or to associated inflammations of the parametria, the wave current may be employed daily for a period of twenty minutes during the whole intermenstrual period, by means of a rectal electrode or an abdominal electrode over the public region, or a vaginal electrode in the posterior fornix. The spark gaps may measure from two to four or eight inches.

Induced Current.—As an alternative treatment for this condition an induced current may be carried through the pelvic organs by means of abdominal and sacral pads. In the judgment of the author the former treatment is far more efficacious.

MALPOSITIONS OF THE UTERUS.—Here two conditions present themselves: (1) Where there is fixation of the uterus; (2) Where there is mobility of the uterus.

In the first condition the indication is to break up adhesions. If adhesions are present with inflammation, the latter should be first removed either by the static wave current as above described, or by means of the positive electrode consisting of a metal ball mounted upon an insulated staff. (Fig. 1.) The ball is covered with cotton and introduced into the vagina and placed against the mass of adhesions. A current of twenty-five or thirty m. a. is allowed to flow for ten minutes three times weekly. When the inflammation has disappeared, the vaginal electrode is connected with the negative pole and the treatment continued as before. When the adhesions have been dissolved by the solvent action of the negative pole, a slowly interrupted induced current is employed for a period of five or ten minutes, for the purpose of removing the exudates. The next step is the introduction of an intrauterine electrode (Fig. 2), which is first used to reposit the uterus and next to carry a slowly interrupted induced current for the purpose of massaging the uterine muscles and ligaments. The uterus is then held in place by the introduction of a wool tampon saturated with boro-glyceride, which is permitted to remain until the next treatment.

In the second condition, where the uterus is mobile, the necessity for dissolving adhesions does not exist, and the second part of the above treatment only is demanded.

(To be continued)

DEPARTMENT OF DIETETICS

SUGAR IN ITS RELATION TO INFANT FEEDING

BY J. A. DENKINGER, M.D., BOSTON, MASS.



Continued from page 222.

RELATION OF CARBOHYDRATE FOODS TO CONSTIPATION AND DIARRHŒA

Generally speaking, the starchy carbohydrate foods, especially the flours and other preparations obtained from cereals, are constipating in tendency, but carbohydrate foods rich in cellulose, which excites peristalsis, have a laxative tendency. Wheat, barley, rice, and such starchy foods as arrowroot and tapioca tend to constipate, for which reason they are frequently used to counteract tendencies to looseness of the bowels. Oats, the husk of which is closely adherent to the kernel and is very difficult to eliminate entirely in the grinding process and contains considerable cellulose in the form of sharp particles, is, despite its starch content, a laxative food. Jacobi makes use of oats in the constipation of infants, using barley water in diarrhœa. I have found rice or arrowroot more useful in diarrhœa than barley and other cereals.

Sugar, on the other hand, and this applies to all forms of sugar, has a laxative tendency, for which reason it is frequently used in the constipation of infants, but should be kept relatively low in diarrhœa. Some physicians simply increase the quantity of lactose in the feeding mixture when the infant is constipated. Jacobi, who uses cane sugar in preference to lactose in the artificial feeding of infants, increases the quantity of cane sugar. J. Lewis Smith, the eminent pediatricist, made free and very successful use of malt extracts in the constipation of infants, using Horlick's Dry Extract of Malt for this purpose. The laxative effect of sugar is partly due to its hygroscopic properties, which result in the withdrawal of more or less water from the intestine, and in this way brings about a liquid, or at least a pultaceous stool. Another explanation of the laxative effect of sugar is that sugar, especially sucrose (cane sugar) is more or less an irritant to mucous membrane, especially in strong solutions, then again, the products of the fermentation of sugar — acids and gases — are powerful excitants of peristalsis and tend to fluidity of stools.

Keller found that all sugars in large doses result regularly in watery, diarrhœal stools, but some sugars much more so than others.

The coarser and unrefined sugars, like "brown sugar," maple sugar, and

molasses, are more laxative than the refined sugars in the same doses. Holt found lactose and cane sugar to have little or no effect in constipation, and goes so far as to say, "If anything, it is increased thereby." "Brown sugar" and the malted foods proved more effective.

Maltose, malt extracts, and the malted infant foods generally, have the reputation of being specially adapted to "regulate the bowels."

On the other hand, dextrin, one of the intermediate products in the conversion of starch into maltose, but more closely related to starch than to sugar, although a soluble carbohydrate, is not laxative, not even in a strong solution and comparatively large quantities. This is the reason why Soxhlet's Nährzucker, composed of equal parts of maltose and dextrin, is not laxative even when administered in large quantities and in very concentrated form. The malted foods, based on the Liebig formula, contains a much larger proportion of maltose (about three parts of maltose to one of dextrin).

THE DIURETIC ACTION OF SUGAR

The excessive ingestion of sugar materially increases the flow of urine. This diuretic action is not limited to lactose, as some writers seem to think, but applies to cane sugar, maltose, and dextrose (glucose) as well.

THE CHOICE OF SUGAR IN THE ARTIFICIAL FEEDING OF INFANTS

Although the subject is of sufficient importance to warrant careful consideration, authorities are by no means in agreement as to the most suitable form of carbohydrates for artificially fed infants.

Rietschel, in a recent contribution on the subject of infant feeding, remarks: "It is by no means indifferent what kind of sugar we give," adding, "The ideal healthy infant, it is true, will thrive on any sugar or any fat, provided it receives a sufficient number of calories, but it frequently happens that an infant that will not thrive on a milk-sugar mixture, will gain promptly when maltose, cane sugar, or a cereal flour wholly or partly take the place of lactose. According to Czerny and Finkelstein, maltose is especially calculated to result in gain."

Amongst the numerous authorities who have realized that there are other carbohydrates suitable and under certain conditions superior to lactose in the artificial feeding of infants is Rotch. In a paper* read before the American Pediatric Society at its annual meeting (May 25, 1908), Rotch admits that "the explanation of many of the successful results in infant feeding lies in the especial carbohydrate which it is possible to embody in the various preparations of food." He then enters upon a

*Archives of Pediatrics, September, 1908.

consideration of carbohydrates other than lactose, such as cane sugar, dextrose, starch, and maltose, and takes occasion to state what appear to him to be the special indications for these carbohydrates.

Commenting upon the well-known liability of lactose to undergo lactic acid fermentation more readily than other sugars, Rotch remarks: "If you have lactic fermentation do not put in milk sugar, but put in maltose, which does not produce this acid condition as soon as lactose. On the other hand, if you have an over-production of butyric acid use lactose rather than maltose."

In the same article, Rotch recommends a new prescription blank for the use of milk laboratories which embodies his latest ideas as to the use of carbohydrates, fat, proteids, alkalies, etc., in milk prescriptions. This prescription blank has since been adopted by the Walker-Gordon laboratories, and is in part represented here along with sections of prescription blanks formerly used, to illustrate the advances made since the establishment of these laboratories.

R	PER CENT	R	PER CENT
Fat		Fat	
Milk-Sugar . . .		Milk-Sugar . . .	
Proteids		Whey Proteids .	
Lime Water . . .		Caseinogen . . .	
		Lime Water . . .	
Heat at	°F.....	Heat at	°F.....

R	PER CENT
Fats	
(a) Carbohydrates {	
Lactose (Milk Sugar)	
Maltose (Malt Sugar)	
Sucrose (Cane Sugar)	
Dextrose (Grape Sugar)	
Starch	
(b) Dextrinize	
(c) Proteids {	
Whey	
Casein	
(d) Peptonize	
(e) Sodium Citrate {	
% of milk and cream	
% of total mixture	
(f) Sodium Bicarb. {	
% of milk and cream	
% of total mixture	
(g) Lime Water {	
% of milk and cream	
% of total mixture	
(h) Lactic Acid {	
Bacillus	
1. To inhibit the sapro-	
phytes of fermentation.	
2. To facilitate digestion of	
the proteids	
Heat at	°F.....

It will be noticed that in the first or earliest blank used by the laboratory no account was taken of the *kinds* of proteids found in milk; in the second blank, caseinogen and whey proteids are differentiated, but only one sugar and one alkali figure in the blank, whereas in the third or latest blank, five carbohydrates (including starch, with provisions for its dextrinization if considered advisable) are represented, along with several alkalies and salts and the lactic acid ferment. The new blank is a timely recognition of a number of methods and food materials, the use of which was formerly considered irrational by some of our **greatest** authorities. Restricting ourselves to a consideration of the carbohydrates figuring in the prescription blank, viz.: dextrose, starch, canesugar, lactose, and maltose, we will now examine their respective merits and special indications in the artificial feeding of infants.

DEXTROSE AND LEVULOSE

The monosaccharides or simple sugars (the end products of all forms of carbohydrates, both starch and sugar) constitute, as we have seen, the only forms of sugar capable of being directly absorbed and assimilated without further change. Such being the case, the question arises why not use these physiological and predigested sugars, represented by dextrose and its isomer levulose, instead of the dissaccharides lactose, canesugar, and maltose, or the polysaccharides starch and dextrin, all of which must be changed into dextrose, levulose, or galactose before they can be assimilated? In the case of levulose, its high cost alone (\$2 per pound) makes its use prohibitive. Dextrose, on the other hand, is quite cheap. It is true, its sweetening power is inferior to all the dissaccharides, except lactose, but this is not a serious objection; it is in fact at times of advantage. Dextrose has, moreover, as has been stated before, the highest assimilation limit of any carbohydrate except starch. In feeding cases where a very rapidly assimilated carbohydrate is indicated, there can be no objection to dextrose, but under ordinary conditions there is no more need of a completely predigested sugar than of predigested proteid material. Nature evidently intended that the carbohydrates ordinarily ingested should undergo some modification in the gastro-intestinal tract before absorption and assimilation takes place, and provided a number of enzymes or ferments for this purpose; at any rate, nearly all the *natural* carbohydrates (starch, dextrin, maltose, and lactose), as well as canesugar, undergo a number of changes in the digestive tract before they can be utilized in the body.

STARCH

Recent labors of physiologists and clinicians leave no doubt that

infants can utilize starch (in moderate quantity) much earlier in life than was formerly taught, as the result of which many authorities now advocate the addition of a small quantity of starchy carbohydrate material, usually in the form of cereals to the milk of artificially fed infants. In this country, Jacobi has been a strenuous advocate of cereal decoctions as an addition to cow's milk for over half a century. In Germany, Heubner, Baginsky, Finkelstein, and others freely advocate the addition of cereals in some form, to the milk of artificially fed infants. As ordinarily given, the starchy cereals added to cow's milk have very little food value. The chief object in adding starchy carbohydrates to milk is to render the milk more digestible. The starchy diluent acting mechanically on the casein prevents the formation of large, tough curds, forming a fine coagulum easily permeated by the gastric fluids. It has been found that 0.75 per cent starch is ample to render the precipitated casein finer. In order to be available for nutrition, starch has to undergo a number of changes in the digestive tract. The ferment *amylase* (better known as *diastase*) found in the saliva (ptyalin) and in the pancreatic juice (amyl-opsin) acting upon starch, transform it by a series of progressive changes, first into soluble starch (amidulin or amylo-dextrin) followed in succession by a series of dextrans (erythro-dextrin, achroo-dextrin, malto-dextrin) with the sugar maltose as the chief end product. As starchy cereal waters or gruels possess no advantage over the dextrinized or digested gruels, and the malted or Liebig foods of commerce in rendering cow's milk more digestible, as will be shown later, and as is well stated by Rotch,* "The amylolytic function of the infant is not fully developed in the early months of life, and should not be overtaxed in the process of its development," the addition of starchy carbohydrates to the milk of young infants as a routine measure cannot be commended.

I have at times found well-cooked and strained cereal waters or gruels made from barley or rice or from such starchy food materials as arrowroot *prepared with water* of value in checking diarrhea. This is largely due to the fact that they undergo decomposition less readily than sugar and milk containing foods. If given in very dilute forms, as is always advisable, they add but little to the intestinal content, and in this way do not irritate the sensitive mucous membrane. On the other hand the use of the starchy foods mentioned, whether prepared with water, or as an addition to the milk of artificially fed infants, tends to constipation, and is for this reason contraindicated in this troublesome condition.

SUCROSE (*Saccharose, canesugar*)

Unlike the other disaccharides, maltose and lactose, which are natural or physiological sugars, sucrose is a man-made or artificial sugar. Sucrose

*Rotch: Pediatrics. 5th edition, 1906. Page 177.

is one of the sweetest of sugars, being two and one half times as sweet as dextrose. Some authorities hold that on account of its great sweetness, infants fed on milk mixtures containing much canesugar are more difficult to wean than infants fed on mixtures sweetened with other forms of sugar. On account of its excessive sweetness, canesugar is rarely used in quantities over one half or two thirds of lactose and other sugars. As this results in a very material lessening of "heat and energy producing calories," this loss of calories must be made up by adding the proper quantity of some other carbohydrate or fat.

Sucrose is not directly fermentable by yeast, but crude yeast contains a ferment (*invertin*) which splits sucrose into a mixture of two monosaccharides, known as invert sugar, consisting of equal parts of dextrose and levulose, which yield the true fermentation. Inversion is also produced by simple boiling, and by boiling with weak acids as well as by means of ferments and bacteria. Most of the canesugar entering the alimentary canal remains unaltered until it reaches the small intestine; the small quantity of invert sugar found in the stomach after a meal of canesugar is due to the action of the hydrochloric acid on canesugar. After its conversion into equal parts of dextrose and levulose, sucrose is ready for absorption.

It is generally believed that canesugar is more liable to fermentation than other forms of sugar. As to forms of fermentation, canesugar, like maltose, is more liable to undergo butyric and alcoholic fermentation, but less liable to undergo lactic acid fermentation than lactose.

Sittler* in his study of the intestinal bacteria found with different sugars noted, that canesugar had a most unfavorable influence on the normal fecal flora, resulting in almost pure white, markedly soapy and glistening stools, which upon bacteriological examination showed a predominance of the *B. perfringens*. (The chief micro-organism found in infants fed on lactose, dextrin, and maltose is the *B. bifidus communis*.)

The use of canesugar as an addition to cow's milk in the artificial feeding of infants is advocated by a number of eminent pediatricists, but in most cases more on account of its cheapness and convenience than for reasons of special fitness. In this country, Jacobi, Caillé, and Brush are strong advocates of sucrose. Of European authorities Cautley, Marfan, and Fischl advocate or at least permit its use. Kerley (New York) and Biedert (Germany) approve of it only when it is a question of expense. Holt recommends it under certain conditions, such as cases of faulty milk sugar digestion. Rotch, Cheadle, Moritz, and Finkelstein object to its use. Most authorities agree that canesugar is much more objectionable for infants during the first few months than later.

UNTOWARD EFFECTS MORE OR LESS PECULIAR TO CANESUGAR

While I believe that the injurious effects of canesugar have been

*(*Kinderarzt*, Jan. 8, 1909.)

much exaggerated by some writers, canesugar is upon the whole a less suitable carbohydrate for infants than maltose or lactose. Most authorities agree that canesugar disturbs and delays gastric digestion more than other sugars. It is particularly liable to cause hyperacidity, and it certainly produces "sour stomach" more quickly than the natural sugars (maltose, lactose, dextrose, levulose). Ogata showed that canesugar, especially concentrated solutions of canesugar, had an extremely irritating effect on the mucous membrane of the stomach, giving rise to gastric catarrh, which was not the case when levulose, dextrose, or maltose was used. It is also believed that canesugar is much more liable to cause colic than other sugars. Kerley found "sugar incapacity" in infants most marked when canesugar was used. Amongst older children, he found a great difference in point of canesugar capacity. Some could take four to eight ounces a day without trouble, in others a few grains produced marked disturbances.

The objections to canesugar as a suitable sugar in the artificial feeding of infants may be summarized as follows: Unlike lactose, maltose, dextrose, and other carbohydrates, which are natural or physiological sugars, sucrose (canesugar) is an artificial, man-made product. On account of its excessive sweetness it cannot be given in as large quantities as maltose and other carbohydrates. There seems to be no doubt that canesugar has a more irritating effect on mucous membrane wherever located, resulting in the outpouring of more mucus and giving rise to a more acid gastric juice than is the case with the "natural" sugars, such as maltose, dextrose, levulose, or lactose.

LACTOSE (*Milk Sugar*)

Lactose is an ingredient of the milk of mammals. It was first isolated and described by Bartoletti in 1615, and introduced into medicine by Testi in 1698. It is inferior to other sugars as a sweetener, being only about one third as sweet as canesugar, it has a gritty taste and is much less soluble than the other sugars in common use. It is also very much higher in price than canesugar.

LACTOSE AND FERMENTATION

Lactose is not fermentable with pure yeast, and ferments very slowly with common yeast and only after being split into the monosaccharides dextrose and galactose by the ferment *lactase* found in several kinds of yeast, and in the secretion and mucous membrane of the intestinal juice and the pancreas. Lactose undergoes lactic acid fermentation more readily than other forms of sugar. In the "souring of milk" this is brought

about by the *bacterium lactis* and certain other micro-organisms which transform lactose into lactic acid and alcohol.

In the preparation of *Koumiss* (originally made from mare's milk, but also from asses' and camels' milk, and in this country made from cows' milk to which an artificial ferment is added); and in *Kephir* (a name applied to Koumiss made from cows' milk), lactose undergoes alcoholic fermentation by the action of certain schizomycetes (Hammarsten), aided by other micro-organisms resulting in the formation of lactic acid at the same time. Under certain conditions (abnormal fermentation) milk sugar is hydrolized to form lactic acid, carbon dioxid, oxygen, and alcohol so that little or no galactose and dextrose is formed, and the sugar thus destroyed by bacteria is lost to the body.

LACTOSE AND DIARRHEA

Quantity for quantity, lactose is probably *less* liable to cause diarrhea than the other sugars in common use, but in large doses, especially when given in concentrated solutions it causes diarrhea just as other sugars.

THE ABSORPTION AND ASSIMILATION LIMIT OF LACTOSE

All authorities agree that lactose is more slowly and less perfectly absorbed than the other sugars in ordinary use,* and the fact that the assimilation limit is lower for lactose than any other sugar readily explains why the ingestion of lactose in large quantities frequently results in the absorption of lactose without previous inversion, and elimination by way of the urine (lactosuria). In gastro-intestinal disease the assimilation limit of lactose is further reduced.†

LACTOSE IN ITS RELATION TO GAIN IN WEIGHT

Czerny and Keller found lactose an exception to other carbohydrates, starch included, in influencing body weight, lactose having no appreciable influence on the body weight of artificially fed infants; large doses of lactose resulting in failure to gain in cases where the use of other sugars, especially maltose, produced marked gain in weight.

*According to Albertoni, Weinland, Moritz, and others, lactose is much more slowly absorbed than the other double sugars (maltose and canesugar).

†“ In severe disturbances of health, especially gastro-intestinal disease of infants, the splitting up of milk sugar may not occur in the intestine (the younger the infant, the more likely this is to happen), the sugar is then absorbed unchanged and reappears in part in the urine on account of its low limit of assimilation.” (Grosz, Langstein, and Steinitz)—Freund in Pfaundler and Schlossmann's Diseases of Children. Vol. 3, p. 281.

“ Under normal conditions, one hundred and fifty grams of lactose may be taken fasting without causing lactosuria, whereas in diseases of the stomach much less than one hundred and twenty grams caused lactosuria.”—A. von Halasz (Deutsche Medizinische Wochenschrift, May 7, 1908).

THE LACTOSE OF HUMAN MILK AND COMMERCIAL LACTOSE

Lactose being the sugar found in human milk, it is only natural that lactose should be "preferred" by those who adhere closely to breast milk as a model. It is, however, by no means certain that the lactose of human milk and cows' milk is identical.* The milksugar of commerce is, moreover, quite often impure, being rarely free from germs, its mode of manufacture resulting in considerable contamination.

Summarizing what has been stated in reference to lactose, there seems to be general agreement that lactose is more slowly digested, as well as more slowly and less completely assimilated than maltose and other sugars, and that on account of its low assimilation limit, which is materially decreased in gastro-intestinal disease, it cannot be given in as large a quantity as maltose and other sugars without causing sugar to appear in the urine (lactosuria). Lactose has also been found to be the poorest of all carbohydrates to result in gain of weight, being not only inferior to all other sugars in that respect, but to starchy foods as well, all of which suggests the use of a more assimilable sugar than lactose as an addition to milk. Finally, lactose is contraindicated when there is an excessive production of lactic acid on account of the rapidity with which lactose undergoes lactic acid fermentation.

MALTOSE† (*Malt sugar*)

Maltose is the sugar formed by the action of the enzyme *amylase* or *diastase* in the hydrolysis of starch. This enzyme is found in the saliva (ptyalin) in the pancreatic juice (amylapsin) and in the intestinal juice as well as in sprouting barley or malt.

According to some authorities, a certain amount of maltose is capable of direct absorption from the stomach. Ordinarily, however, maltose is not absorbed as such,§ but is first changed into dextrose, by an inverting ferment known as *maltase* or *glucase*. This enzyme also acts upon starch and dextrin, but more particularly upon maltose. It is found in malt and in various yeasts, in the pancreas and in the intestinal juice, even the saliva contains a little. *Maltase* is also found in the blood to convert any maltose absorbed as such into dextrose; for maltose to be assimilated must first be transformed into dextrose.

*Brush found that while the lactose of human milk is completely assimilated, the lactose of commerce, when added to the infant's food is eliminated both by the kidneys and bowels.

†De Saussure isolated in 1819 a hitherto unknown sugar from the hydration products of starch and described its crystalline nature. In 1847 this sugar was more closely studied by Dubrunfaut who called it maltose.

§Reid, quoted by Cohnheim states, "Probably all, certainly the greater part of maltose is converted into dextrose before being absorbed."

(*To be continued.*)

THE MEDICAL ROUND TABLE

EPILEPSY

EDITOR JOURNAL OF THERAPEUTICS AND DIETETICS:

I have read with deep interest Professor French's note on the application of glonoin in epilepsy in your March issue. Feeling that the brevity of Professor French's mention may cause some readers to overlook the importance of the matter, I beg leave to offer a few considerations on this topic.

Epilepsy has long been one of the opprobria of medicine, and it behooves us to give to this terrible affliction our most careful study, with the hope that when illumined by the light of modern science we may be able to ameliorate the condition of the sufferer. I may say here that in no serious disease is more to be expected from the application of that knowledge of physiologic function and pathologic disorder which has been gathered during the past twenty years.

Epilepsy is to-day looked upon as a manifestation of autotoxemia. We have in this malady the combination of an abnormally impressible nervous system, and the existence of a cause of irritation in the form of toxic matters circulating in the blood, which for some reason are not eliminated as rapidly as nature intended. For some reason not as yet clearly understood, uric acid disappears from the urine one day or more before the epileptic convulsion; so that if daily examinations of the urine are made on this point, one can easily foretell the occurrence of the convulsion; and generally, if proper measures are instituted, it may be forestalled and prevented.

The influence of habit here is very great, insomuch that even were the exciting causes removed after a patient has been a victim to this disease for a considerable period, the convulsions would still continue. For this reason, also, the longer the convulsions are prevented by appropriate treatment, the less likely they will be to return, since the convulsive habit is broken up and the habit of control substituted.

The management of an epileptic from this viewpoint is easily comprehensible. We know more about toxins derived from nitrogenous foods than any others. If other toxins are derived from fat, sugar, and other carbohydrates, they have at least not as yet been demonstrated. Since uric acid, the most probable cause of the convulsions, or at least that whose disappearance from the urine coincides with their occurrence, is

derived from nitrogenous bases, the first consideration is to strictly limit the quantity of nitrogenous foods which the patient takes into his system. We should therefore endeavor to exclude richly nitrogenous foods, such as cheese, beans, peas, pork, and veal, from the diet as rigidly as possible. Other meat foods should be reduced to the lowest possible quantity, in fact, if we can induce our patients to do without meat altogether and confine themselves to vegetables we will do well.

Tea and coffee are well avoided, the best drink being water. Of this an abundance should be taken, with the object of keeping the sewers of the body constantly flushed. If the patient objects to pure water, which is the best beverage on the face of this earth and the most delicious, it might be flavored to suit his taste. Children will always drink any quantity of water if flavored with a little licorice. Many are fond of sassafras tea, and this is a harmless and useful beverage.

Patients must be taught to eat without drinking, to eat slowly, to chew their food thoroughly, and never to overload the stomach. Good judgment on the part of the mother aids the directions immensely. Let the epileptic child be fed on food that requires long mastication. Very hard crackers, like hardtack or Boston biscuit, are infinitely better than soft mushes that can be swallowed greedily. Appetite is more quickly satisfied by foods that require long chewing, than by much larger quantities which are swallowed without any mastication whatever. Children should also be taught to eat their food dry, drinking only before or after meals, but not to wash the food down unmasticated.

Rigid adherence to this program is absolutely necessary, and considerable firmness is required in carrying it out, since the epileptic is usually headstrong, heedless, greedy for rich food, and difficult to control. But if we as physicians shirked things that are unpleasant and difficult, we would but poorly fulfill our functions as such.

The next step is elimination. It is absolutely essential that the bowels should be kept free, since the most dangerous toxins are those that are generated in long retained and decomposing fecal matter. The bowels must be kept regulated by such means as the physician prefers, in each individual instance.

Next we should see that the other channels of elimination are kept free. For this reason I have for years employed veratrine with satisfactory results. My experience fully carries out the statements of those who, like Dr. Waugh, have advised this remedy, in that under its use the excretion of the total solids in the urine is considerably increased. I believe it also increases excretion through the skin, since the perspiration when one begins to use veratrine is sometimes markedly offensive, especially if the bowels have not been completely emptied.

It is not wise to push this remedy too far. To a boy of fifteen years

I am now giving one granule dissolved in half a glass of water an hour before each meal, and one on going to bed; but if the test shows that uric acid disappears from the urine I give a granule every hour until irritation or burning of the stomach commences. I also act upon the bowels by an enema of an ounce or two of pure glycerin, or the saturated solution of table salt, which produces an enormous discharge from the bowels and drains toxins from the blood admirably.

The next indication is to subdue the hyperexcitability of the nervous system. Formerly I depended upon the bromides for this purpose, but the objections to these agents are many and serious. They interfere with digestion, ruin the functions of the stomach, and depress the mental and physical activity of the patient to a degree which I cannot but look upon as disastrous. Of recent years, following an indication for which I believe I was indebted to Professor French, I have been using solanum carolinense, at first in the form of a tincture or extract fluid, but during the past two years substituting for it the alkaloid solanine. My reasons for employing veratrine and solanine have been that the majority of my patients are children or young adults with whom it is difficult to administer medicines which are unpleasant, while the little doses, so easily taken, of the alkaloids have cleared away a serious difficulty from my path.

In truth I believe that this difficulty alone was responsible for most of my failures in earlier days. A patient will not carry a bottle and a spoon; the cork comes out of the bottle also, and after one or two experiences of this sort the patient indignantly refuses to have anything more to do with the liquid. But the granules, enough for a day's supply, can be slipped into a vest pocket and taken without difficulty; and, what is of considerable importance, without attracting the notice of the boy's associates. If you think this latter consideration is too small to merit notice, ask your next fifteen year old boy patient, and see what he thinks about it.

We now come to the use of glonoin. The aura is one of the most important features of an epileptic convulsion. Those of us who are still old fashioned enough to believe in special Providences, look upon it as a boon conferred by the Almighty on this unhappy sufferer, to warn him of the approaching convulsion in time to prevent it.

The means of prevention have been given us in glonoin. The aura may be ascribed to the first circulatory alteration in the brain, the beginning of spasm of the coats of the blood vessels. Give glonoin instantly, letting the granules be chewed so that the remedy is absorbed from the mouth, and this spasm is unlocked, the convulsion stopping right there, while the effects of glonoin are almost instantaneously manifested, they do not last long, and for this reason I am in the habit of combining atropine and hyoscine with it. By either of these remedies, the former being

probably the best, the dilatation of the blood vessels is prolonged until, by quick elimination, the danger may be averted.

By "quick elimination" I mean the use of the salt enema and some rapidly acting cathartic like elaterin or croton oil. If the pulse is full and bounding, I have no hesitation in injecting hypodermically enough veratrine to bring it near normal conditions; just as I would under similar conditions presenting puerperal eclampsia. Here I follow the classic indications as given by Ellingwood: The pulse full, large, and bounding, the tissues engorged, the capillary circulation full.

Few of our cases are more satisfactory in the long run than these. It is a pleasure beyond description to one who knows what epilepsy is when neglected, to see these patients gradually emerge from the depths, the paroxysms becoming less frequent and less severe, until they cease entirely.

The treatment must be continued for a long time. A good rule is that the patient must remain under the observation of the physician until he has learned to properly care for himself.

Permit me to suggest that we would like to hear from Professor French at greater length on this important topic. I understand that his experience has been unique, and from several of his communications, which I have read, it seems that he is an original observer, one from whom we could derive information such as is not found in every textbook.

HENRY LASHER, M.D.,
Parkersburg, W. Va.

LOBELIA INFLATA

BY W. LEMING, M.D., LEXINGTON, KENTUCKY

The original study made by The Eclectic League for Drug Research of the State of Kentucky, on the drug lobelia, confirms and suggests the following specific indications for its use:

1. A sense of dyspnea over the chest and heart.
2. A fullness and atonicity of tissue, doughyness.
3. Spasmodic and congestive conditions, local and general.
4. Cough, with or without glandular secretion, with above indications.
5. Shock to the vital forces; collapse (hypodermic use).
6. Toxemias, diphtheria, membranous croup, tetanus (hypodermic use).
7. Nerve excitation; morphinism (hypodermic use).

Administered hypodermically, not one reported mentioned nausea

or emesis as a result, only a salutary stimulation of forces and strengthening of the pulse.

In diphtheria, Dr. G. T. Fuller, Kentucky, considers it a coming drug, equal to and safer than antitoxin.

Dr. W. P. Best, Indianapolis, reports its hypodermic use in a child three days old (premature) apparently dying; resuscitation and improvement were immediate, but death occurred later from inanition.

Given hypodermically in a severe case of quinsy, the pain was relieved and the patient asleep in twenty minutes, the first rest in several days.

Dr. Ralph Taylor, Ohio, considers it a nerve sedative hypodermically, safe and unproductive of emesis in any dose.

One doctor claims it is valuable in morphinism.

Dr. G. W. Holmes, Florida, gave one dram with veratrum viride night and morning, per rectum, in a child inoculated with tetanus; after chloral, bromides, and gelsemium had failed. Improvement was marked in twenty-four hours with gradual recovery.

Dr. V. A. Baker, Michigan, regards it by mouth as a great febrifuge, a panacea, useful in fever complications. He depends upon it in syphilis.

It did no good in a case of collapse after an operation for purulent appendicitis, but no nausea supervened.

It was successfully administered in a case of membranous croup.

Injections into inflamed inguinal buboes prevented suppuration in two or three instances, and limited the pus focus in the third. No nausea or after pain.

The pulse was strengthened and slowed for the time being in a case of tachycardia, effects from its continued use not being determined. Ten-drop doses by mouth stimulated labor pains rather than nausea. Dr. J. J. Morrill, Kentucky, uses one dram to a pint of hot water as a local agent to the perineum in the second stage of labor.

All reports speak of its usefulness in congestive and spasmodic conditions of the heart and lungs, accompanied by pain and unpleasant sensations. Not one bad effect was reported from its use hypodermically.

The dose hypodermically ranged from ten to sixty drops; by mouth, one to sixty, as indicated.

LOBELIA INFLATA

(Supplementary)

Further report on lobelia inflata brings to light the following facts:

One Michigan eclectic reports the frequent hypodermic use of the specific medicine in infantile eclamesia, with excellent results and no consequent nausea nor abscess formation. However, he reports abscess formation "quite often after the non-alcoholic hypodermic lobelia, de-

spite all antiseptic precautions," he further states that in the hands of a brother practitioner the "hypodermic lobelia has produced excessive emesis upon several occasions."

Excellent results were obtained from the specific medicines hypodermically in severe follicular tonsillitis, in diphtheria, and in a case of chronic bronchitis with an acute laryngeal spasm and dyspnea so acute that it looked as if the patient would asphyxiate; ten drops, given hypodermically and repeated in ten minutes gave marked relief.

A report verifies the excellency in ivy poisoning, locally applied, and in one case of chronic pustular eczema of the back of the hand.

Dr. Waterhouse, Missouri, in the *Medical Harbinger*, reports two advanced cases of diphtheria in which the hypodermic use was apparently a failure, in one of the cases producing so much irritation of the larynx that it had to be discontinued. . W. LEMING, M. D., LEXINGTON, KY.

TELA ARANÆ AND THE COLLECTIVE INVESTIGATION OF DRUGS

EDITOR JOURNAL OF THERAPEUTICS AND DIETETICS:

In the February issue (1908) of the *JOURNAL OF THERAPEUTICS AND DIETETICS* is an editorial on the collective investigation of drugs, by which is understood the study of drugs as tested in the practice of the physicians collaborating, and gathered from the experience of others.

The valuable results of such clinical observation cannot be over-estimated, but I would like to propose also a testing even more fundamental and essentially scientific, viz., the exact imbalancing effects arising from the ingestion of a single drug by the healthy human organism, or to put it more broadly, an organism in a fair state of equilibrium.

With the results thus obtained we have an exact picture, for the individual, of the action and affinities of the drug substance, by an accumulation of individual experiences, an average (non-idiosyncratic) action of the drug as an imbalancing agent, as a disturbing factor, as a restorative agent in disease.

Having thus established a series of facts relating to purely medicinal action, we may compare them philosophically with a series of facts which go to make up a morbid syndrome, and if between the two series a constant relation (determined clinically) is found, we actually become philosophers.

For example: there have been in the eclectic journals a number of articles upon tela. The writer would like to know positively the effect of tela upon the organism in equilibrium, and to this end will join with any physician or physicians who, being in average health, will ingest tela until effects are produced, noting carefully the exact symptomatology.

The scientific difference between such testing and the testing of tela in practice is quite evident.

P. W. SHEDD, M.D.,

Associate Editor North American Journal of Homeopathy,
1318 Brook Ave., New York.

We present this letter as it comes to us, for the comments of our readers. Will any one join with him in the work which he suggests?

J. M. F.

POPLAR BARK AND POPULIN

EDITOR JOURNAL OF THERAPEUTICS AND DIETETICS:

Referring to the question why I use populin, I have to say that I am not able to tell, briefly, beyond the fact that I formerly used the tincture or extract of poplar bark, in many cases of vitiated appetite and disordered stomach, and have rather naturally adopted the active principle, which I have found so far superior to the cruder substances that I now use it extensively in anemia with gratifying results.

Pichucalco, Chiapas, Mexico

ROBERT GRAY, M.D.

This note is in reply to a request for his experience in the use of populin. And we again ask any of our readers who may have had any experience in the use of *Verbena hastata*, *solanum carolinense*, *populus tremuloides*, *lycopus virginica*, or their alkaloids or active principles, to give us briefly the result of that experience.

J. M. F.

BOOK REVIEWS

A Guide to the Twelve Tissue Remedies of Biochemistry, the Cell-salts, Biochemic, or Schuessler Remedies, by E. P. ANSHUTZ, pp. 91. Cloth, 75 cents net. Postage, 5 cents. Boericke & Tafel, Philadelphia, 1909.

This little manual aims to give, and does very successfully, the principles upon which the tissue salts of Schuessler acts in the curation of disease. The author also points out very plainly the more characteristic indications for the use of each salt. It is a good book for a pocket companion to pick up at odd moments and become familiar with the use of these agents.

Practical Dietetics, with reference to Diet in Disease, by ALIDA FRANCES PATTEE, Graduate, Department of Household Arts, State Normal School, Framingham, Mass. Special Instructor at Bellevue, Mount Sinai, Hahne-mann, and the Flower Hospital Training Schools for Nurses, New York

City, St. Vincent de Paul Hospital, Brockville, Ontario, Canada. Fifth edition. Pp. 312, cloth, \$1.00 net. By mail, \$1.10. A. F. Pattee, 52 West 39th Street, New York City, 1909.

The rapidity with which each edition of this practical work on feeding in disease is exhausted, is the best criterion of its usefulness and the success it is meeting with at the hands of the medical profession. Every medical library, no matter how small it may be, should contain a copy of this work.

Seven Hundred Surgical Suggestions; Practical Brevities in Diagnosis and Treatment, by WALTER M. BRICKNER, B.S., M.D., Assistant Adjunct Surgeon, Mount Sinai Hospital; Editor in Chief, American Journal of Surgery, New York. Eli Moschowitz, A.B., M.D., Assistant Physician Mount Sinai Hospital Dispensary; Assistant Editor American Journal of Surgery, New York, and HAROLD M. HAYS, M.A., M.D., Assistant Editor, American Journal of Surgery, New York. Third Series. Edition de luxe, pp. 153. Price, \$1.00 net. Surgery Publishing Company, 92 William Street, New York City.

This elegant sample of the printer's art is filled to repletion with choice practical suggestions of much usefulness to whoever has anything to do in the realm of surgery, be it ever so slight. They have been culled with much care from the pages of the American Journal of Surgery, where the most of them first appeared, and have been arranged in such a form as will prove most advantageous to those who turn the pages in search of surgical knowledge.

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The compiler of this striking book so expresses himself regarding its mission. "The man with backbone turns trials into triumphs, vexations into victories; nor is he easily stampeded. He dares to act while others debate, for his convictions are not easily shaken. His success is not an accident."

Every one who turns the pages of this little brochure must necessarily imbibe some of the optimism with which its pages are crammed, and thus find themselves better fitted to fight the battles of life to a victorious ending. If you have not seen the book send for it to-day.

SOME SKIN REMEDIES

Calcareo Carbonica.— Your patient presents a skin that is pallid and inelastic, with an enlargement of the lymphatic glands. The tissues are soft and flabby, and there is a general tendency to debility. *Dose*: Grains iii to v of the 3x every two to three hours.

Arsenic.— Where you find a skin that is of a pallid or sallow color and has lost its elasticity but is complicated with dryness this remedy will prove valuable. There are eczematous eruptions frequently present. *Dose*: Fowler's Solution. Of this preparation you may prescribe from i to v gtts., in water, every two to four hours. My own preference is for the smaller dose more frequently repeated.

Spec. Med. Berberis Aquif.— In your chronic skin cases where you have a yellowish tinge and there is marked torpidity of the liver, with general debility, especially if you can obtain any syphilitic history, you should remember this agent. *Dose*: Give v to x gtts. in water every two to three hours.

Spec. Med. Cuprum.— When this drug is needed the skin is pale and transparent and frequently of a dirty greenish tinge. These conditions obtain both in anemia and chlorosis. *Dose*: Add 10 gtts. to ℥iv of Aqua, and give drachm doses every two or three hours.

Arsenite of Copper.— Many times this salt will be preferable to the copper solution. There is a want of tonicity in addition to the color indications for the copper, and the skin feels dry and harsh to the touch. The eruptions are slow in making their appearance, and equally slow in disappearing, and there is considerable discoloration around the eruptive spots. *Dose*: 1-200 to 1-100 grain three or four times a day.

Spec. Med. Chionanthus.— Yellow skin and clay-colored stools are pretty good indications for this remedy, no matter what may be the difficulty. The conjunctiva also has the yellowish tinge and the tongue displays the same hue. Add from one half to two drachms to four ounces of water, and give in teaspoonful doses every one, two, or three hours.

Ferri Arsenas.— This salt has been found useful where the skin is dry from eczematous eruptions and there is considerable glandular inactivity. *Dose*: One twentieth to one sixteenth of a grain may be given three times a day.

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EDITORIALS

PREVENTION

THE medical profession as a whole have been for the past century trying to eradicate disease. They are acting on the old maxim "an ounce of prevention is worth a pound of cure," and what they have accomplished along these lines redounds much to their credit.

The "Great White Plague" is the problem that pre-eminently confronts the profession to-day, and much time, labor, and money are being used to place it under control. In this connection we desire to call the especial attention of our readers to the article in this issue, entitled, "Tubercle and Underwear," on page 267, which certainly strikes at the root of the cause of much of the trouble that eventually leads up to a tuberculous condition. The matter of the clothing that is to be worn next to the skin demands more attention than it has as yet received.

WHEN DOCTORS DIFFER

SOME people seem to think that because therapeutics is not mathematics, therefore medicine is not a science. And when a man desires to discredit the medical profession as a whole, he prates about the admitted fact that doctors differ, as though that proved conclusively that they were all quacks and frauds and humbugs.

The fact is that there is only one science of mathematics, and medicine is not a mathematical science. The differences among medical men, instead of being a cause for reproach, are a reason for congratulation. The only safety of the public health, and the only promise that the future of medicine will be an improvement on its past, lies in the fact that different men see things through different eyes, and make use of different means to bring about the same results, namely, relief from suffering, restoration to health, and the prolongation of life. A diversity of opinion is certainly desirable, as tending to promote discussion, prevent stagnation, and favor progress. Indeed, should the day ever come — long may it be delayed — when doctors all agree, when there is a dead level of professional uniformity, when individual diversities of opinion are no longer tolerated, and when all questions are settled according to the dictum of the authorities, then that day will mark the end of all progress in medicine, and there will come about a general stagnation which will end in death.

It is to be noted for the encouragement of all progressive physicians, that there is a greater degree of toleration, and a readier welcome of professional differences to-day than ever before. It may not be, indeed, that doctors differ more widely to-day than in former times, but only that they have become more tolerant of differences of opinion, and more willing to admit the possibility that there may be something to learn from one's neighbors, who see through different colored glasses from his own. This is true not only of individuals, but of so-called schools of medicine and classes of physicians. Time is only short when "regulars" and homeopaths and eclectics were not on speaking terms with each other, and when "old school" and "new school" were terms of opprobrium in medicine as in theology. Each school was fenced about with a Chinese wall of tenets, and along the wall was the sign, "No passing." To-day the bars are down, the fences are being leveled, and the professional lawns of doctors of the different schools are marked only by an invisible line, and the fact that the shrubbery growing on the opposite sides of this invisible line varies a little in its character. Moreover, from the two sides of this invisible line each doctor looks out upon his neighbor's lawn, to see what of beauty, what of use, and what of profit is growing there, if, perchance, he may be able to duplicate the useful, the beautiful, and the profitable, for his own use on his side of the still invisible hedge.

These reflections are suggested by the recent meeting of the Thurber Medical Association, a local society which was alluded to in our April issue, and whose papers on rheumatism were published in full therein. The history of the evolution of this society is a type of the growth of the profession as a whole in that line. Organized as a local medical society in 1853, its membership was for many years restricted by the terms of its charter to the members of the Massachusetts Medical Society. In the course of years this restriction was found burdensome, and the charter was amended by an act of the legislature, giving the power to admit any legal practitioner, who was a graduate of a reputable "regular" medical college. Of late years even this restriction was found undesirable, on account of the development of the feeling on the part of the members that some of their neighbors who were not of the fold which they had been taught to call "regular," would make desirable additions to the society. So, after due notice, but with almost no discussion, and absolutely no opposition, the word "regular" was stricken out, and the doors were opened to legal practitioners who were graduates of reputable medical schools, and who could pass the ballot of the members.

The experiment has worked well, and new life has come to the society, coincident at least with the introduction of what would once have been considered the sources of irreconcilable and even dangerous disagreement, but which are now looked upon only as healthy and stimulating differences of opinion. The society is now able to consider a therapeutic topic from all sides, as was shown at the meeting under consideration, where "regulars," alkaloidists, homeopathists, eclectics, and physical therapists met in harmony and in friendship to discuss the treatment of one of the most common and trying of all acute diseases, and each man was eager to learn of his neighbor, looking for some new method or agent in the treatment of this hydra-headed disease.

One development of this coming together of the once opposing clans is the discovery on the part of the old-time antagonists, but now friends, that there is much that is common between them all. Another is that each school has a good many points which it will pay the others to learn. While the third, perhaps most important of all, is that these men, graduates of different schools of medicine, and taught to pronounce different "shibboleths," are all physicians and honorable men, whose sole aim is to cure their patients when curable, and benefit them when incurable.

And what physician of any school will venture to say that these doctors of all schools are not learning things of value from their neighbors of other schools?

J. M. F.

DEPARTMENT OF THERAPEUTICS

SPIGELIA

By A. WALDO FORBUSH, M.D., SOMERVILLE, MASS.

Spigelia — common name, pink root. *Habitat*.— This plant is indigenous to the United States, South America, and the West Indies. It is found growing in dry, rich soil, and flowers in May or June. Several varieties of the plant exist and botanists vary in their arrangement of them.

The *spigelia anthelmia* is thought to be more active in its influence upon the heart than the *spigelia marilandia*, otherwise there is but little therapeutic difference in the two species.

This plant was used by the aborigines as an anthelmintic before the discovery of America. Drs. Lining, Chambers, and Garden were the first to acquaint the medical profession with this early use, and added their own observations of its usefulness to this knowledge. It remained for the homeopathic school to develop the full characteristics of the drug, together with the indications for its use.

Constituents.— The analysis shows that it consists of a fixed oil, resin, wax, with salts, and spigeline — a bitter principle.

The plant's medicinal activity resides in this acrid, bitter principle, which is soluble in water or alcohol, but quite insoluble in ether. The alkaline carbonates do not diminish the action of this remedy.

Spigelia has special centers of action connected with the cerebro-spinal nervous system, influencing especially the sentient nerves of the head, thoracic cavity, arteries, and digestive organs.

Physiological Effects.— In large doses *spigelia* will produce various unpleasant symptoms, viz.: vertigo, dimness of vision, dilated pupils, spasmodic movements of eyelids, disinclination to mental work, restless and anxious headache, spasmodic movements of the facial muscles, and sometimes general convulsions. The irritation of the nerve centers here displayed is shown especially in the sensory portion. Pain, usually of a shooting character, is stirred up in many parts of the body, more particularly in the head, face, and thorax, predominating on the left side. The heart symptoms are marked by a great pressure upon the chest; there is increased action of the heart and arterial pressure. Violent palpitation is noticed, with cutting pains in and about the heart and down the left arm. There is short breathing, worse from talking, dyspnea, and a feeling of suffocation. The cough is dry and hard; the fever is high; there is sys-

tolic blowing at the apex of the heart. The pulse is irregular, strong, or trembling. Shooting pains are complained of under the left clavicle and about the neck. The lips are dry, pale, and cracked. The tongue is coated yellow. There is a white or yellow mucus in the mouth and throat. Great thirst is complained of, and the flow of urine copious with frequent urging — mostly at night. Cutting colicky pains center around the navel.

The mydriatic effects of the drug are well marked. There is an over-sensitive retina, dilated pupils, sharp, stabbing pains in and over the eye — through the eyeball, back into the head, sparks and flashes before the sight, distortion and irregular movements of the balls. The severe pain and all its accompanying symptoms indicate that the sclerotica is the tissue chiefly affected. The dilatation of the pupils is, no doubt, from paralysis of the third nerve. There is great inclination to wink, often persistent twitching of the eyelids. Periodical deafness occurs, and frequently coryza with hoarseness. There is trembling of the arms, stitches in the elbows and joints of hands and fingers, contractions of flexors of fingers. There is restlessness, cannot keep the limbs still at night, and the sleep is unrefreshing, the skin is pale, wrinkled, and yellow.

Therapy.— Diagnosis is of prime importance, but of no more value than treatment based on the indications of symptoms presented. Therapy based on appreciation of the physiological cause of the symptoms spoils the possibility of many a brilliant made diagnosis. Scientific drug medication has been, and is now, so neglected by a class that they, from ignorance of the therapeutic action of drugs, go wild on the “fads” that come and go.

Spigelia has been prescribed with advantage in neuralgia where the pain centers in the eye and the headache takes the form of supra-orbital neuralgia, more especially on the left side, also when the pain recurs at regular intervals and tends to spread to the face and neck and is associated with a pale face, restlessness, and palpitation. Hyperesthesia of the filaments of the fifth pair of nerves is one of the most prominent symptoms for the use of *spigelia* or when the pain is seated in a union of the infra-orbital and maxillary branches of this nerve. The occiput is the seat of many pains which extend to neighboring parts. In the forehead, especially in the frontal protuberance, we find pulsating stitches, a pressure from within outward, boring and burning pain, which is usually superficial and indicates an affection of the supra-orbital nerve; in such instances, as well as in various indications of neuroses, spasmodic twitchings of the eyelids, etc., the *spigelia* will be found to do good work.

Hughes commends the drug in inflammatory conditions of the eye in so-called scrofulous children where, with photophobia, there is severe ciliary neuralgia; also in “intolerable pressive pain in the eyeballs, still more painful on turning the eyes; obliged to turn the whole head.” In

rheumatism and arthritic ophthalmia, eyes feel so large, neuralgia very severe, Hughes says, "when rheumatic ophthalmia means scleritis, spigelia will act most satisfactorily." It is much praised in the primary neuralgic stage of the arthritic ophthalmia which is probably acute glaucoma. Its action is exerted on all the tissues, but especially upon the muscular tissues and upon the functions of special sense. This drug will be found of extra value in chronic twitchings of the eyelids.

Spigelia is prescribed by many physicians as a remedy in pericarditis. In this affection it owes its reputation, largely, to Fleishmann, whose attention was drawn to the symptoms of anginal pains, in the proving which extended over the chest and down the left arm. The pulse is irregular and small; there may be attacks of syncope. When pericardial effusion has taken place it is no longer the indicated remedy, and its use should be discontinued.

Winterburn says, "Rheumatic pericarditis with violent palpitation of the heart, palpitation so violent that the walls of the chest are raised, waving palpitation not synchronous with the pulse, trembling of the carotids, dyspnea, etc., spigelia will be found quite the specific."

Spigelia is the special indicated remedy for the fully developed endocarditis, especially if it is of rheumatic origin. Hughes refers to the success of Fleishmann, who prescribed the drug almost indiscriminately in acute inflammatory affections of the heart. Jousset gives as the special symptoms for spigelia, agonizing pain in the precordium, which radiates along the phrenic nerves and those of the brachial plexus; here the similarity to angina pectoris is well marked. The irregular pulse, its intermittence, threatening syncope, the considerable dyspnea completes the clinical picture. If the accelerated pulse is replaced by a slowness, this remedy is surely indicated.

Webster says spigelia in the beginning will protect the heart from rheumatic influences.

Spigelia affects the digestive organs in large doses as a mild cathartic, and is useful as vermicide. It appears to narcotize the round worm, and then a brisk cathartic is required to expel it.

Concerning the symptoms calling for spigelia, Gross says, "We have dull stitches in the pit of the stomach worse on inspiration, gripping in the abdomen as though the intestines would be constricted, difficult respiration." Hartman says, "Painful pressure in the lower part of the abdomen as if it would burst, relieved by stool, fine stitches in the tongue, it is full of cracks, tongue coated pale yellow, much spitting of frothy saliva, nausea every morning, thin, mushy stool." Fyfe says, "Well indicated in catarrhal derangement of the intestinal canal indicated by nervous depression and irritability with fever conditions resembling infantile remittent fever."

In angina pectoris the curative treatment is to be enforced during the interparoxysmal periods. Hughes places his dependence upon arsenic, but uses spigelia with confidence in those cases which are purely neuralgic.

Spigelia is the favorite remedy of Jousset. He says, "It corresponds to the agonizing neuralgia pain, substernal, extending to the neck and down the arms, to the irregularity of the pulse, to tendency to syncope, etc., and aggravation from the least motion." He also says, "I know of several cases in which this remedy has, in my hands, effected permanent cures or long-lasting amelioration."

In herpes zoster spigelia is indicated by the neuralgic character of the symptoms. It is prescribed more on this basis than because of the eruption. In recurring attacks, the pre-eruptive stage and the frequent obstinate pain following the clearing up of the eruption, this remedy will be clearly indicated.

In its action upon the nervous system spigelia seems to occupy a position peculiarly its own. Hughes says, "The irritation of the nerve centers here displayed is shown especially in the sensory portion." He also claims that this drug exerts a favorable influence when there is depression of spirits, the patient being restless and anxious, easily irritated or offended, the body being very painful to the touch, the sleep restless and unrefreshing, nervous headache, worse from thinking, from noise or any jarring influence, the face is pale.

Spigelia is well indicated in tearing pains in the limbs with great weakness, tearing pains in the joints of the muscular or fibrous tissue. It is also of service at the climacteric for the allaying of the troublesome flashes of heat, night sweats, and other annoying conditions of this period.

We cannot expect full results from our drugs if we overlook the important nutritive problems and the antagonizing influence arising from wrong habits. It has been well said, "*Life is no more than a problem [of digestion].*" The working out the nutritive problems will enable us to observe just how much energy each individual, according to age, physique, occupation, and climate, requires of the various nutritive elements to produce in the human engine the best ratio of harmonious action. In fact, know exactly the animal energy imparted from the assimilated intakes.

The failure, more or less, of all methods of treatment are due primarily to this lack of understanding how to feed our patients. Were we to give more attention to this part of our treatment so as to correctly adapt the food to the body requirements we would be in a better position to prescribe the indicated remedy for close results.

General Indications for Spigelia.—Neuralgic pains of head, chest, and heart; *semi-lateral headaches*, involving the eye, chiefly the left side; periodical headaches, beginning at cerebellum, extending over left eye, causing violent pulsating pains, worse in change of weather. Constriction

of chest, with stitches, worse from the least motion and breathing; of exceptional value in removing lumbricoids. Rheumatic endocarditis and pericarditis; beneficial in angina pectoris, neuralgic heart affections, and in functional palpitations.

Usual Dose.—Fifteen drops of a standard tincture of spigelia in sixteen teaspoonfuls of water. A teaspoonful to be given from every half hour to every three hours.

A NEW VAGINAL DOUCHE

BY GEORGE H. TUTTLE, M.D., BOSTON, MASS.

THE device here described consists of a pear-shaped dilatable rubber bag perforated along the long axis of its fundus by forty small holes, and tapering at its neck so as to act under the influence of the downward pressure of the water in the vagina as a plug for the vulvar orifice. Its elasticity renders it adaptable to practically any size or shape of orifice, while its extreme flexibility prevents any harmful degree of pressure in the vagina. Being made from the finest rubber, it is readily dilatable to more than twice its natural size. It serves as a simple attachment to any syringe being placed on the adult rectal nozzle, or may be attached to a bulbar nozzle of similar caliber, being secured by a piece of silk or soft string. These points are plainly shown in the illustrations.

The amount of expansion of the douche bag is controlled entirely by the elevation of the reservoir. For a common douche, unless otherwise ordered, it is from three to four feet.

The douche bag may be made by traction to fit the vaginal outlet perfectly, or, as in the case of a long douche, may lie loosely, allowing water to flow in and out. A two-quart syringe bag is usually used, and at the end of the douche this is lowered and the small bag collapses and falls out.

There are two uses for this device to give, (1) the regular warm water vaginal douche; (2) the medicated douche.

When used for a simple warm douche of short duration (from three to five minutes) it produces hyperemia, and by the longer douche (from fifteen to twenty minutes) produces ischemia of the pelvic organs. By its use the application of warm or hot water is rendered accurate and scientific. By prescribing the duration and temperature of the douche it renders the result certain.

The medicated douche is made more effective by the dilatation of the vaginal mucous membranes, and the opening of the fold therein as the bag expands, and thus retains the solution in the vagina under pressure

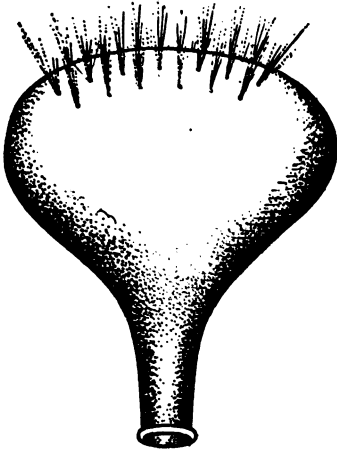


Fig. 1.—The dilatable rubber bag.

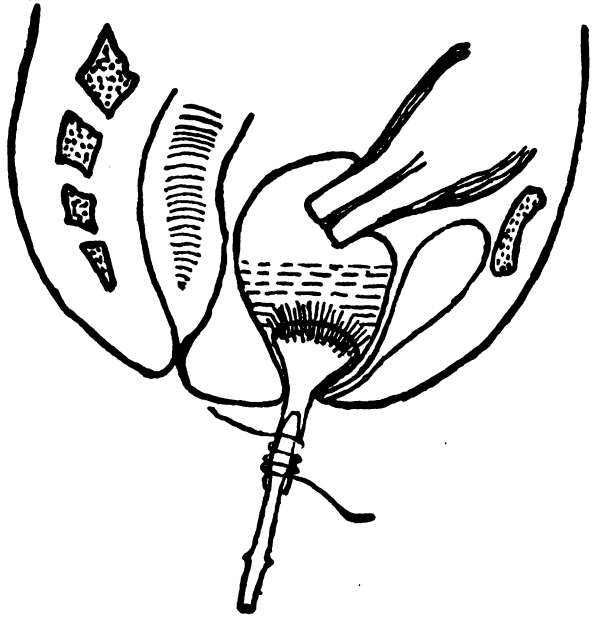


Fig. 2.—Diagrammatic representation of douche in use.

for any desired length of time. In gonorrheal vaginitis a preliminary douche of fifteen minutes of simple hot water poultices the membranes and relieves pain, after which drug solutions may be applied to the thoroughly cleansed parts.

Lastly, this douche, or rather its sprinkle, is very gentle, as the pressure from the reservoir is held under control by the elasticity of the bag, and is finally divided into forty different parts represented by the separate streams.

Some advantages to the patient are: (1) In traveling, cumbrous douch apparatus need not be carried; (2) it is effective in the sitting as well as in the recumbent position; (3) No assistants are needed; (4) There is great saving in expense, the cost of the bag is inconsiderable; (5) Can be sterilized by boiling.

The Journal of the American Medical Association, May 1, 1909.

THE ESTIMATION OF INDICAN

BY HENRY R. HARROWER, M.D., CHICAGO, ILL.

IN these days, when the term "autointoxication" has come so prominently to the front, no progressive physician should omit to perform the simple urinary test which definitely shows him the condition of the lower bowel.

It is a very common occurrence for a physician to hear in his office: "Oh! my bowels are working all right, doctor; they move quite regularly," or some similar statement; but when, in his routine analysis of the urine, he finds large amounts of indican present, and the induction of thorough catharsis removes a large quantity of foul-smelling, putrefying material, he decides more positively than ever that the indican test shall, in future, be made in *every case*.

Many individuals suffering from autointoxication have, or think they have, free bowel movements; but an accumulation of decomposing fecal matter at the hepatic and splenic flexures of the colon, in the sigmoid, and often along the walls of the entire large intestine is insidiously and seriously poisoning the unsuspecting individual.



The accurate estimation of indican in the urine is a very tedious and difficult procedure, and is, therefore, out of the question in the work of the general practitioner. In my practice I make use of a very simple instrument which permits of *definite* comparative tests. This consists of a glass tube, graduated as in the accompanying sketch, so that 5 Cc. each of urine and the reagent may be mixed with a 2 Cc. of chloroform.

The procedure is as follows: The tube is filled to the mark "C" with commercial chloroform; urine is then added to the mark "U" and Obermayer's reagent (2 *pro mille* solution of ferric chloride in concentrated hydrochloric acid) to the mark "R." The tube is then closed with the thumb and vigorously shaken for a few seconds. It is then allowed to settle, and the blue color, due to the indigo blue (from the oxidized indican present and dissolved in the chloroform) may be judged as zero, trace, plus, or double plus.

It is admitted that this is a very simple procedure, and that no modification of the Obermayer test has been made; but the use of the above tube materially assists in making more definite comparative tests.

It is well to remember that Halliburton has demonstrated that albumin forms a slight blue color with hydrochloric acid, and should, therefore, be removed before performing this test.

I am endeavoring to work out an indican test scale, somewhat similar

in principle to the Tallquist or Niemöller hemoglobin scale, which will bring the approximations down to definite figures.—*Am. Journal of Clinical Medicine.*

TUBERCLE AND UNDERWEAR

BY LEONARD WILLIAMS, M.D., M.R.C.P., LONDON, ENGLAND

*Physician to the French Hospital; Assistant Physician to the
Metropolitan Hospital*

THE strength of tuberculosis resides largely in its power of successful masquerade. It masquerades in general and it masquerades in particular. It masqueraded for centuries as the child of cold and damp, and succeeded to such good purpose that it established itself as one of the greatest destructive powers on this planet. It succeeds to-day in gaining invaluable time by successfully masquerading, even before the eyes of keen and trained observers, as some transient and harmless malady. It deceives the physician, it deludes the surgeon; above all, it hoodwinks the hygienist.

The hygienist is one who is versed in the science of the preservation of health. Him the demon of tuberculosis has persuaded that the most suitable underwear for people in general, and for the tuberculous in particular, is the material—namely, flannel or wool—which of all others is the least conducive to health and the most favorable to the development and progress of tubercle. And yet the hygienist is not easily deceived. In the last few decades, by his methods of scientific experiment and patient observation, he has read the secret of several dread diseases. He has beaten smallpox and typhus, he has exposed enteric; and malarial fever he has triumphantly tracked to its lair among the swamps. Nevertheless, tubercle remains his master, to the extent even of causing him to advocate, obstinately and even aggressively, a custom which on grounds both theoretical and practical is grossly, ridiculously, and demonstrably wrong. Let us see.

The two main functions of the skin are generally considered to be the preservation of the heat equilibrium and the excretion of certain effete matters in the form of fluid or watery vapor. Assuming that this view of the matter is correct, and assuming also that clothing of some kind is essential to dwellers in the temperate zone, it follows that, of such clothing, the portion to be worn next the skin should be endowed with the two properties which will best assist in the performance of the two principal cutaneous functions. The material should, in fact, be warm and absorbent.

In the temperate zone people suffer from extremes of cold, rarely from extremes of heat. Underwear should therefore be warm. No material is "warm" *per se*. The warmth is necessarily derived from the body, so that a warm material is merely one which does not allow the heat to escape rapidly, a material which is, in short, a bad conductor. Atmospheric air being one of the worst conductors of heat, from this point of view, a very suitable material is one which is so constructed as to imprison a considerable portion of atmospheric air in its meshes.

The excrementitious fluids and vapors which are constantly being given off from the skin should, like all other excrementitious matter, be removed as soon as possible from the cutaneous surface. To this end, it is essential that underwear should be absorbent, and absorbent in a very high degree. If it is not, not only does the excrementitious fluid remain in contact with the skin to irritate it, but the layer of atmospheric air which lies between the garment and the skin itself rapidly becomes surcharged with moisture and excreted gases. However tightly fitting the garment may be, there is always this layer of atmospheric air between it and the skin, and the skin, be it remembered, is a respiratory organ.

So much is generally conceded; the theoretical propositions are, indeed, beyond dispute. It is only when we come to their practical application that the machinations of the demon of tubercle become apparent. This demon has decreed that flannel or wool (they are the same thing) shall be considered to be the proper material for underwear, and, further, that he who thinks otherwise shall be deemed unorthodox — either a fool or a faddist. Of the two properties essential to wholesome underwear — warmth and the power of absorption — flannel possesses one only, namely, warmth. Of the other, superficially the less attractive, but hygienically infinitely the more important, namely, a high degree of absorptive power, it possesses little or none at all. The demon, however, has contrived to sit at the elbow of all the writers of all the textbooks on the subject, and has mesmerized them into applying the adjective "hygroscopic" to this material. Had they not been mesmerized, it is certain that these authorities, some of them at any rate, would have tested the truth of this claim. A very simple experiment would have shown them its falsity and proclaimed the danger to which its acceptance exposes the credulous.

If a piece of flannel is placed on water it will float for hours before it sinks; indeed, if the flannel be "new," unless the water be agitated, it will not sink at all. Compare this with the behavior in the same circumstances of a piece of linen or cotton or silk. The kerchief made of any of these materials sinks immediately, showing that its absorptive power is infinitely greater than that of flannel. And yet the latter is authoritatively described as "hygroscopic." If the believers in its possession of this

property were to substitute a flannel for a linen pocket handkerchief the next time they suffer from a cold in the head, the experience would probably suggest some more homely adjective. Except in comparison with mackintosh-sheeting and zinc-roofing, flannel is not hygroscopic; in comparison with linen or cotton or silk it is conspicuously and essentially devoid of absorptive power. This refers to new flannel. The washing process to which undergarments are subjected causes flannel to shrink. This means that the air spaces to which the material owes its "warmth" are gradually abolished by the attentions of the washerwoman, so that a piece of old flannel is neither "warm" in the above sense nor absorbent. From the standpoint of hygienic underwear it has now become not only partly, but wholly and actively, deleterious; a garment made of newspaper could hardly be more so.

In the light of these considerations, the effects of wearing flannel or wool in contact with the skin are not very difficult to estimate. The excrementitious moisture which is constantly being given off from the cutaneous surface cannot find that exit which Nature intended it to find, and it is consequently imprisoned in the layer of atmospheric air which lies between the garment and the skin. This layer, accordingly, rapidly becomes impure and moist. Setting aside the respiratory function of the skin, whose importance, though admitted in theory, is invariably hastily brushed aside as soon as any question of underwear is concerned, it is pertinent to inquire what effect this layer of moist and impure air is likely to exercise upon the two cutaneous functions whose importance is commonly regarded as paramount.

And first as to the heat-regulating function. Whatever the variations in the temperature of the surrounding medium, the body is normally maintained at the uniform temperature of 98.4° F. by means of corresponding variations in the contraction and dilatation of the vessels in the integument. To a cold influence they contract, so as to prevent undue loss of heat; to a warm influence they relax, so as to favor evaporation and radiation. The layer of warm moist air which flannel imprisons against the skin seriously interferes with this process, for the cutaneous vessels are in a continual state of undue relaxation; they are being subjected to the same influence as a poultice exerts, and do not therefore contract adequately to a cold influence. That is the reason why flannel-wearers always complain so bitterly of the cold, their pathetically futile remedy for which is to multiply the number of garments of the very material which is the cause of their miseries.

From the point of view of tubercle, both actual and potential, this has a very serious bearing. The tuberculous poison is a powerful vasodilator, so that the practice of wearing flannel imitates closely the results which the bacillus itself seeks to effect, results which are therefore pre-

sumably the most advantageous to its development. But vaso-dilation means low blood-pressure, and low blood-pressure spells physical lassitude and mental lethargy. In the case of the young, this inevitably leads to defective development, and both in young and mature it provides a fitting nidus for any pathogenic germ which may be watching its opportunity.

The poultice-like effect of wearing flannel induces an enormous excess of cutaneous secretion, and here again we find a very close imitation of the behavior of the tuberculous poison. In France they recognize that in the case of the potentially tuberculous the great thing to avoid is demineralization of the tissues, a process which is immensely favored by the undue activity of the sweat-glands, for which the wearing of flannel is responsible.

The disinclination, however, of the mesmerized hygienist to discuss the question of the skin as a respiratory organ should not prevent those who have escaped the mesmeric influence from looking the matter in the face. Every one now admits the paramount importance of supplying fresh air in superabundance to the lungs, but where it is a question of the other, and the only other, respiratory organ, the matter of fresh air is considered of no account. The skin is, in point of fact, still treated as the lungs used to be treated in the presanatorium days, the days of the apotheosis of "warmth" and the neglect of purity. Where the skin is concerned the cry is still "warmth" at all hazards; purity is regarded as a fad and physiology as an academic study whose teachings can be considered only when they happen to be in consonance with the requirements of the thermal monster which a stiff-necked and ignorant generation has elected to worship. And this "warmth" which they affect to cultivate is precisely what the flannel-wearers never attain. Their relaxed cutaneous vessels do not, because they cannot, respond to a cold influence, undue loss of heat is constantly occurring, and instead of treating their skins on rational physiological principles, instead of training them to respond promptly and adequately to external variations, they increase the dosage of the vessel-relaxing and health-destroying flannel. Is it any wonder that the children among them have adenoids and are rickety, or that the adults regard a "draught" as their deadliest enemy?

At the root of the enormous amount of educative work which still remains to be accomplished in the fight against tuberculosis lies the question of the hygiene of the skin. The flannel-wearer hates fresh air because it is cold, and so long as he remains a flannel-wearer he is powerless to react to cold influences. He therefore fights stubbornly and aggressively against the application in his own case of the principles of the open-air treatment. It is useless to try and convince such a person that fresh air is his best friend. He knows by experience that it is not; whatever its theoretical merits may be, to him it means undue loss of heat and consequent physical miseries. If he is ever to be convinced it must be by way

of his skin. When that is properly educated and rationally clothed, draughts will cease to have any terror for him. Until then he will remain a convinced and militant obstacle to progress, inflicting overheated and polluted atmospheres upon every company in which he may find himself. Considering that, thanks to the demon of tuberculosis, the vast majority are flannel-wearers, what possible chance under existing conditions has the true gospel?

If this demon is to be cheated, the community must be purged of this preposterous heresy. The skin must be trained by cold baths and exposure to other cold influences adequately to perform its contractile duties. Underclothing must be in consonance with physiological principles; that is, it must be warm, absorbent, and ventilated. Nature did not intend us to live in hot houses, neither did she impose clothing upon us. If we would live healthfully and allow our children to develop normally we must revert to natural conditions so far as the exigencies of civilized life will permit us. The necessity for pure air is gaining recognition, but it will not carry us far until we have recognized the equal if not greater necessity for rational and physiological treatment of the skin. Linen, cotton, and silk undergarments can be made, and are made, so as to imprison air in their meshes. Such garments are every whit as warm as flannel to which they are superior in their possession of those absorptive and ventilating properties of which flannel is so conspicuously devoid.

— *The Clinical Journal*, December 30, 1908.

Genuine work done, what thou workest faithfully, that is eternal! Take courage, then; raise the arm; strike home, and that right lustily; the citadel of hope must yield to noble desire, thus seconded by noble effort.

— *Carlyle*.

Because in a day of my days to come
There awaiteth a grief to be,
Shall my heart grow faint, and my lips be dumb
In this day that is bright for me?

Nay, shadows across my sun may fall,
But as bright the sun shall shine;
For I walk in a light that cannot pall,
The light of the King divine.

— *M. E. Sangster*

Things which never could have made a man happy develop a power to make him strong. Strength and not happiness, or rather only that happiness which comes by strength, is the end of human living.— *Phillips Brooks*.

INFECTIOUS DISEASES

	Incubation Period	Date of definite illness when the eruption		Quaran- tine required after <i>latest</i> ex- posure to infection	Infection ceases
		Appears	Begins to fade		
Chicken Pox	10 to 16 days	1st day and 3 following days	About 4th	20 days	When every scab has fallen off.
Diphtheria	2 to 10 days			12 days	In 4 weeks, if no discharges or albumin, and if bacteriological examination of nose and throat be negative.
German Measles (Roetheln)	7 to 18 days or even longer	2d to 4th	4th to 7th	20 days	In not less than 10 days from ap- pearance of rash.
Measles	10 to 14 days	4th day Highly infec- tious for 2 days before rash appears.	5th to 7th	16 days	In not less than 2 weeks from ap- pearance of rash.
Mumps	10 to 22 days			24 days	In not less than 3 weeks, and only when 1 week has elapsed since subsidence of all swelling.
Ringworm					When examination reveals no broken off, diseased hairs
Scarlet Fever	1 to 8 days, usually 3 to 5	2d	5th	10 days	When desquama- tion, sore throat, and albuminuria disappear, but never in less than 6 weeks.
Smallpox	12 to 14 days	3d or 4th	9th or 10th	16 days	When every scab has disappeared.
Typhoid Fever	7 to 21 days usually 10 to 14	8th or 9th	21st	23 days	
Typhus	5 to 14, very variable	5th	14th	14 days	After 4 weeks.
Whooping Cough	7 to 14 days	The whooping may not ap- pear for 3 weeks, al- though infec- tious before then.		21 days	In 5 weeks from the commencement, provided all spasmodic cough and whooping have ceased for at least 2 weeks.

PHYSICAL THERAPY

FIRST STEPS IN MEDICAL ELECTRICITY

BY HERBERT MCINTOSH, A.M., M.D., BOSTON, MASS.

PART II

CHAPTER I.—DISEASES OF WOMEN

Continued from page 238

PROLAPSUS UTERI.—Here the static wave current may first be employed for relief of inflammation as described above. It is better, however, to place the cervix in a uterine cup electrode (Fig. 4), lift the uterus and employ a slowly interrupted current for a period of from ten to fifteen minutes. A retaining tampon should be introduced and allowed to remain until the next treatment two days later.

CHRONIC ENDOMETRITIS.—This condition, whether corporeal or cervical, is readily corrected by cupric phoresis.

Corporeal Endometritis — cupric phoresis. — An intra-uterine copper electrode is introduced into the uterus (Fig. 2) and attached to the positive pole of a direct current battery. A current strength of from thirty to fifty milliamperes is allowed to flow for ten minutes. The cupric salts deposited in the mucous membranes are highly antiseptic. If, therefore, the endometritis is septic in origin it is speedily cured because there is no fissure or crevice to which these salts are not carried. If it is hemorrhagic in character the astringent quality of the positive pole quickly acts as a corrective. If the endometritis is fungoid in nature the repressive and astringent effect of the cupric salts quickly restores the mucous membrane to its normal condition.

CERVICAL ENDOMETRITIS. *Cupric phoresis.*—A simple catarrh of the cervix which does not depend for its existence or continuance upon a flexion or other associated conditions may be readily cured in the same manner. The thick mucous plug, so difficult to dissolve, is quickly coagulated by the acid developed at the positive pole. After a treatment lasting from five to ten minutes with a current strength of from thirty to forty milliamperes, upon removal of the electrode, it is found not only that the mucous plug is effectually removed, but that the cervical mucous membrane has been practically curetted and the cupric salts deposited throughout the tissues. After each treatment the exudate will be found to have been reduced. The cure is rapid and complete.

CHRONIC METRITIS. *Cupric phoresis.*—The treatment of this condition is somewhat similar to that described above. If the metritis is due to a septic cause, the introduction of an intra-uterine copper electrode (Fig. 3) attached to the positive pole will quickly destroy pyogenic organisms. Hemorrhagic metritis is rapidly corrected by the same method.

Induced Current.—Where normal involution after parturition has been delayed, the slowly interrupted induced current applied to the interior of the uterus is efficient.

Direct Current.—On the other hand where there is hyperplasia of the uterus without discharge, a condition sequential to metritis with discharge, the indication is to stimulate contraction and regenerate muscular fibrils. This is best accomplished by the negative pole of the direct current assisted by slow induced currents.

SENILE METRITIS. *Cupric phoresis.*—The opposite condition, to which attention is directed by Skene in his "Medical Gynecology," namely, senile or atrophic metritis, which is most rebellious to medical treatment, may be successfully treated by the use of the copper intra-uterine electrode attached to the positive pole as above described. The odor is quickly corrected and the cure effected in a relatively short time.

SALPINGITIS — *Cupric phoresis.*—Apostoli has pointed out that the mere passage of a sound will often cause a recrudescence of inflammation of a pyogenic cavity. This furnishes a diagnostic test of the existence of a pus tube which is often invaluable. When, therefore, satisfactory evidence has been presented of the existence of a pyosalpinx, tentative treatment may be begun by the use of a ball copper electrode (Fig. 1) mounted upon an insulated staff and covered with moistened cotton. This is placed against the enlarged tube and attached to the positive pole of the galvanic battery, a current flow of thirty or more milliamperes being maintained for about ten minutes every other day. Under these circumstances the discharge from the uterus becomes greenish, showing that there is a transfer of copper ions into the tube itself. The phoretic action of the copper salts is thus demonstrated. Under these conditions the discharge will cease after a succession of treatments.

Where, however, there is an associated metritis, intra-uterine applications may be tentatively made according to the method described under that head, with marked benefit to the salpingitis.

Where pus is encysted or of gonorrheal origin the rule is to abstain from intra-uterine applications, though cases are recorded in which cures have undoubtedly been effected in such instances by the combined vaginal and intra-uterine treatment.

PELVIC PERITONITIS. *Direct current.*—This manifests itself by a certain rigidity and fixation of the vault of the vagina. This disappears readily under positive vaginal applications of the direct current, assisted by applications of the induced current.

The *static wave current* is also useful in this condition, a flexible metal electrode being applied to the hypogastrium.

MENORRHAGIA. *Direct current.*—Remembering that the positive pole tends to check hemorrhage, we introduce a ball electrode (Fig. 1) well covered with moistened cotton into the posterior vault of the vagina, and attach it to the positive pole. A current strength of from thirty to forty milliamperes may be employed for ten minutes, three times a week for three weeks preceding the menstrual flow. Here rapid results may be obtained by introducing a suitable electrode covered with moistened cotton into the uterus, and still more rapid by cupric phoresis, which is ordinarily not necessary.

EROSIONS OF THE OS. *Cupric phoresis.*—These result usually from acrid discharges due to endometritis or salpingitis. When these are corrected erosions of the os usually disappear. Should they continue they are readily cured by cupric phoresis. For this purpose a cup-shaped electrode (Fig. 3) conforming to the shape of the cervix and composed of copper may be used for cupric phoresis, employing the technique already explained. The treatment lasting a few minutes and employing a current strength of from ten to twenty milliamperes will speedily effect a cure.

OVARITIS. *Cupric phoresis.*—This is of course very frequently associated with salpingitis, metritis, and endometritis. The treatment suitable in this condition is the employment of the ball electrode (Fig. 1), covered with moistened cotton and attached to the positive pole of the constant current battery. The current may have a strength of from thirty to fifty milliamperes, and each treatment may continue for ten minutes, being given three times each week.

Induced current.—This treatment may be succeeded by an induced current from the secondary coil, with rapid vibrations, when there is much pain.

OVARIAN CONGESTION. *Direct current.*—For this condition it is sufficient to send a direct current through the pelvic organs by means of pads placed over the hypogastrium and under the lumbar-sacral region. The current strength should be from thirty to fifty milliamperes. With this treatment, as with the others already described, whatever associated treatment the case demands should be carefully prescribed.

Static wave current.—An electrode of soft metal may be placed over the seat of congestion and treatment continued for twenty minutes. The rods may be separated from one to six inches. In all cases of pelvic trouble, where congestion which is not of an infective nature exists, the static wave current, because of its control over non-infective congestions, is a highly useful method of treatment.

FIBROIDS. *Direct current.*—A renewed interest has of recent years manifested itself in the treatment of fibroids by the use of the direct cur-



FIG. 1

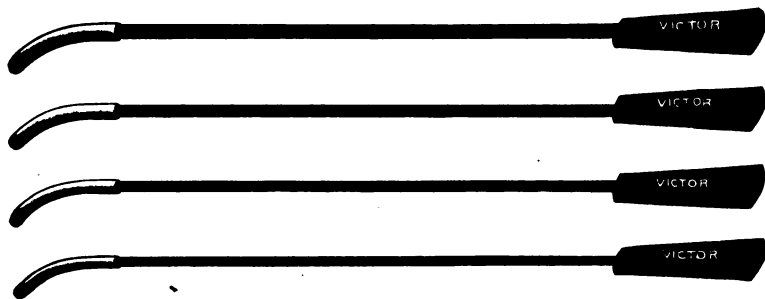


FIG. 2



FIG. 3

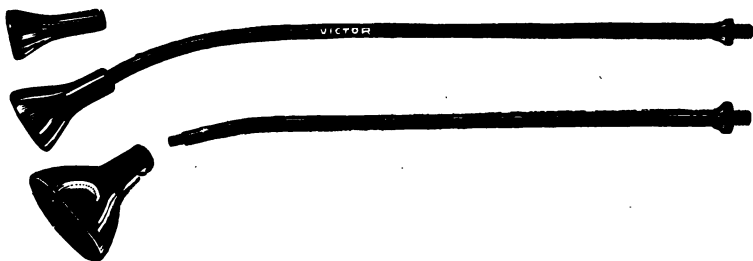


FIG. 4



FIG. 5

rent. The method introduced by Dr. Apostoli has undergone certain modifications. In a series of eighty-six cases reported by Dr. Massey, there was a percentage of 85.33 per cent of successes. In a series of one hundred and four cases reported by Drs. Thomas and Skene Keith, the practical successes were fully 75 per cent, with a much larger percentage if twenty-one cases are included in which partial success was attained.

The method employed in the treatment of these cases is that already described in the treatment of inflammatory conditions of the uterus. The positive pole is employed because of its hemostatic, analgesic, and hardening effect. For this purpose a uterine sound made of platinum is bent at the proper angle and coated with shellac by heating the sound and fusing the scales around the shank up to the required distance from the distal end. This affords perfect insulation, and leaves uncovered only that portion which is to be brought in contact with the interior of the uterus. Some fibers of cotton are now wound around the distal end of the sound, and soaked in a solution of adrenalin chloride. The sound is then introduced, a large abdominal pad being attached to the negative cord. Current strengths up to two hundred and fifty milliamperes may be employed. The treatment should be given once or twice weekly and may continue for ten minutes.

Cupric phoresis.— In some instances it is desirable to employ metallic phoresis, in which case a copper sound upon an insulated staff may be used. The results from metallic phoresis are likely to be much more rapid than from the simple direct currents.

CARCINOMA UTERI.— For the treatment of this disease by the anodal diffusion of zinc-mercury ions, the reader may consult Dr. Masey's "Conservative Gynecology."

(To be continued)

"A commonplace life," we say, and we sigh;
But why should we sigh as we say?
The commonplace sun in the commonplace sky
Makes up the commonplace day.
The moon and the stars are commonplace things
And the flower that blooms and the bird that sings,
But dark were the world, and sad our lot
If the flowers failed and the sun shone not;
And God, who studies each separate soul,
Out of commonplace lives makes His beautiful whole.

— Susan Coolidge.

DEPARTMENT OF DIETETICS

SUGAR IN ITS RELATION TO INFANT FEEDING

BY J. A. DENKINGER, M.D., BOSTON, MASS.

Continued from page 247

MALTOSE AND FERMENTATION

Maltose is not directly fermentable with yeast* as was formerly believed; "an inverting enzyme in common yeast (*maltase*) changes it so quickly that it was long classed among the true fermentable sugars" (Long).

The view is now generally accepted that the disaccharides must first be converted into monosaccharides before real fermentation takes place.

Maltose is not as sweet as canesugar, but much sweeter than milk sugar.

EMINENT PEDIATRISTS ON MALTOSE

Maltose has been advocated and recommended by many leading pediatricists and dietetists of both Europe and America, including such authorities as Czerny and Keller, Gregor, Heubner, Finkelstein, Von Noorden, Moritz, Widerhöfer, Escherich, Gernsheim, Langstein, Cheadle, Aitchison, Robertson, Hutchison, Koplik, Chapin, Brennemann, and many others.

In a recent contribution Langstein† remarks that "although it is not quite settled as to which sugar is most suitable for the artificial feeding of infants, various clinical and biological facts point to maltose."

According to Von Noorden "Maltose is of all forms of sugar the one best tolerated by infants, not excepting infants with gastro-intestinal troubles."

Finkelstein§ found the toleration limit much higher for a mixture of maltose and dextrin than for lactose or canesugar.

*Maltose is not directly fermentable with yeast, for it is necessary for the *maltase* present in the yeast to transform the maltose into glucose before conversion into alcohol and carbonic acid can occur and since *maltase* is not readily obtained from yeast, unless the cells are dried and then ground with sand and water, it follows that the conversion of maltose into glucose is an intra cellular change.—Cohen, Organic Chemistry (1907), page 346.

† "Das Problem der Künstlichen Ernährung der Säuglinge" read before the Berlin Medical Society, Nov. 21, 1907.

§ Ueber alimentäre Intoxication, Jahrbuch für Kinderheilkunde, Nov. 7, 1908.

Heubner found maltose better utilized by the organism of the sick infant than lactose or other sugars, and Hutchison remarks "that maltose is less apt to irritate the stomach than canesugar"; while Koplik refers to maltose "as one of the most digestible carbohydrates."

Keller, who has probably studied the effect of maltose more thoroughly than any other author, in a comparative study of sugars found that the assimilation limit was higher for maltose than all other forms of sugar. He also found lactose the poorest of all sugars to increase body weight and maltose and dextrin the most efficient. He also noted that while other sugars showed in some cases increase of ammonia in the urine, this was never the case with maltose when used in doses within its assimilation limit. He found, moreover, that the addition of maltose to milk in the artificial feeding of infants resulted in very material reduction of albumin disintegration (proteid sparing). Upon the whole maltose showed less gastro-intestinal disturbance than other sugars. If disturbances of metabolism occurred at all with maltose they were much less marked than with other sugars.

According to his investigations, the infant suffering from gastro-intestinal troubles requires a food that is alkaline and low in albumin and fat, the nutritive value of which is best increased by the addition of carbohydrates in the form of maltose. He considers maltose the best form in which to administer carbohydrates to infants.

Rotch,* until recently an emphatic advocate of lactose as the only suitable carbohydrate in the artificial feeding of infants, now "allows that "where an excess of lactic acid is causing a disturbance of fermentation, maltose should be used rather than lactose."

Maltose is now kept in stock by the Walker-Gordon milk laboratories, and is used in their milk prescription work the same as lactose.

Holt, although giving lactose ordinarily the preference, admits that "when there is difficulty in the digestion of milk sugar a temporary change to malt sugar (or canesugar) may even be advantageous."

Maltose, and the same applies to mixtures of maltose and dextrin, is usually added to milk in the same proportion as lactose (one ounce of maltose added to a twenty-ounce milk mixture adds five per cent maltose to that mixture). On account of its high assimilation limit, maltose can be given in higher percentages than lactose, without causing sugar in the urine (alimentary glycosuria). Unfortunately, feeding mixtures containing over seven per cent of sugar (this applies more or less to all kinds of sugar) are very liable to set up abnormal (acid) fermentation indicated by such troublesome symptoms as tympanites, flatulence, and thin and very acid diarrheal stools.

*Recent advances made in the scientific study of food stuffs and their application to the nutrition of infants, Boston Medical and Surgical Journal, February 25, 1909.

SUMMING UP FOR MALTOSE

Maltose, unlike canesugar (a man-made product), is a natural product, and may be justly regarded as a partially digested form of carbohydrate. (Halliburton calls maltose, lactose, and dextrose the three important physiological sugars.) Being a natural sugar, maltose rationally used has no irritating effect on the mucous membrane of the stomach and intestines, as is often the case with canesugar, and can be used more freely without untoward effects than other sugars. Maltose is also more quickly and completely absorbed and assimilated than lactose, the latter, as we have seen, frequently escapes complete assimilation, especially in the case of infants suffering from gastro-intestinal disease. Being a most digestible and assimilable sugar, with a high assimilation limit, it is the sugar par excellence in cases where an infant fails to thrive on lactose or other sugars. It is also preferable to lactose when the latter, on account of its great liability to undergo lactic acid fermentation, results in the production of an excess of lactic acid. Maltose is specially indicated in marasmus and other forms of malnutrition, where high sugar feeding is advisable.

MALT SOUPS AND DEXTRINIZED GRUELS

Admitting the advantages of maltose over other carbohydrates in the artificial feeding of infants, the question arises, in what form are we to supply maltose? Maltose is rarely used pure, but in combination with dextrin* and a certain amount of soluble proteid material of vegetable origin found in malted grains. The introduction of maltose into pediatrics is usually credited to Liebig† (1865), in the form of his justly celebrated malt soup. (Liebig's Malz-suppe.)

In the preparation of his "soup" Liebig used one liter of milk and two hundred grams of water, along with one hundred grams of malt and wheat flour, to which enough carbonate of potassium§ was added to neutralize the acidity of the two flours and to render the "soup" alkaline.

As the proper preparation of the "soup" required considerable time and proved more or less troublesome or difficult to many, it was not

*Dextrin is a soluble carbohydrate formed midway in the hydrolysis of starch by the action of heat or a diastasic enzyme into maltose.

†The use of malt and malt preparations in the artificial feeding of infants is, however, much older. The great Van Helmont, quoted by Ploss, recommended in the early part of the seventeenth century well-fermented fresh malt beer as an *exclusive dietary* for artificially fed infants. More rational was the method advocated in 1805 by Leroy, a Paris physician, who recommended a decoction of malt and fresh drawn cow's milk, to which was added a gruel made from baked wheat flour.

§In later years (Suppe für Säuglinge, Dritte vermehrte Auflage, Braunschweig, 1877) Liebig approved of the substitution of a portion of the potassium salts with sodium salts, also the addition of a little sodium chloride.

very long before a number of manufacturers, alive to the growing demand for Liebig's soup, supplied that demand in extract form, at first in the form of a liquid or semi-liquid, and later on, on account of greater convenience and superior keeping properties in the form of a dry extract requiring the addition of milk and water only.

More recently Keller, famous for his work in connection with the metabolism of infants, has given Liebig's malt soup a new impetus by the brilliant results obtained with a modification of Liebig's soup, now known as *Keller's Malt Soup*, which enjoys a most enviable reputation in both hospital and private practice in Europe, being highly recommended by Czerny, Baginsky, Heubner, Finkelstein, Escherich, and others, who found it of special value in fat and proteid indigestion, subacute and chronic gastro-intestinal diseases, and in marasmus. The late Professor Widerhöfer considered malt soups as a specific in the dietetic treatment of ileo-colitis. Of American pediatricists, Koplik highly endorses the Keller method of feeding "malt-soups."

To quote Koplik:* "I have used this method of feeding in cases in which all other known methods have failed. These children had been fed on modified milk prescribed in a most careful manner by men who may be considered skilful in its administration." He found that the cases best adapted to this method are those infants "who remain stationary in weight, notwithstanding all attempts at percentage modification of the food, where simply cow's milk or cow's milk and cereal decoctions alone have been used. Another set of cases are the pronounced cases of infantile atrophy, primary or accompanied with chronic enteric catarrh, in which the body weight has run down, and the infant is brought to us weighing six to seven pounds."

The dextrinized or digested gruels made familiar to us by Chapin and Pisek differ but little from the "malt soups" so ably advocated by Keller. In both preparations the starch of the cereals entering into their composition is converted into maltose and dextrin by diastasic action, and both contain a considerable quantity of (vegetable) protein in an extremely soluble, flocculent, and digestible form,† which materially increases the quantity of readily absorbable tissue-building material, thus enabling us in most cases to give a higher percentage of highly soluble and digestible proteids than in the usual modifications without the addition of white of egg or whey. Cow's milk contains, even undiluted, much less soluble proteid than human milk, and when it is diluted the quantity of readily absorbable proteid is materially reduced, and if the

*Diseases of Infancy and Childhood, second edition (1906), page 150.

†Experiments with predigested flours by Rockwood, Edsall and Miller, Koplik and others afford ample proof of the value of vegetable proteids as a substitute for milk proteids when the latter prove difficult of digestion.

casein proves difficult of digestion to the infant, serious nutritive disturbances may follow.

I believe that we are justified in regarding malt soups and dextrinized or digested gruels not only as excellent media for supplying soluble carbohydrates of the maltose-dextrin type, but as exceedingly rational and successful modifying agents of cow's milk for the artificial feeding of infants.

The chief if not the only objection to the home-made malt soups and dextrinized or digested gruels is that they require great care and much time for their proper preparation. That this objection is widely felt is shown by the fact that special makes of diastasic preparations facilitating the preparation of malt soups (Keller) and dextrinized gruels (Chapin) are offered by the trade and have earned the hearty approval of the eminent authorities mentioned. On account of the difference in quality and composition existing in cereals, Chapin also recommends a series of *standardized cereal flours* in place of ordinary cereals.

MALTED FOODS

These diastasic preparations and standardized cereal flours are certainly of much help in the proper preparation of homemade malt soups and dextrinized gruels, but an examination of the composition of malt soups and dextrinized gruels shows that they do not possess any real advantage over the malted foods of the Liebig type, which are neither more nor less than ready-made malt soups or dextrinized gruels in powder form, for which Liebig supplied the formula as early as 1865. These foods not only conform in all essentials to Liebig's original formula, and possess all the good qualities of the malt soups and dextrinized gruels, but being carefully made they present greater uniformity in composition than the homemade preparations and have the great advantage of convenience and simplicity of preparation.†

EFFECT OF THE MALTED OR LIEBIG FOODS ON MILK COAGULATION

As is well known, starchy decoctions made from barley, rice, oats, of wheat when added to milk act mechanically on the casein of milk so as to form fine and soft and, consequently, more digestible casein curds, in place of the large, tough curds peculiar to mixtures of milk and plain water. Maltose, when used alone, and this applies to all other sugars, has no modifying action whatever on the proteids of milk.†

*With these foods must also be classed Malted Milk (Horlick's) which contains in addition to the soluble extract of malted cereals making up the plain malted or Liebig Foods, a definite quantity of pure milk, forming a complete food, requiring for its preparation the addition of water only.

†F. W. White: *Journal Boston Society of Medical Sciences*, Dec., 1900, and Smeliansky: *Archiv für Hygiene*, vol. 69, No. 3, 1906.

In the case of the malted or Liebig foods, which contain besides maltose and dextrin, fully ten per cent or more soluble cereal proteid, the curd formed by the addition of this class of foods to milk is soft, sponge or honeycomb-like, breaking apart upon very slight agitation. This is effected by the flocculent cereal proteid dispersed through the milk. The sodium and potassium salts (especially the former) which have been added to these foods to render them alkaline also contribute to make the coagulum softer and finer. Some of the malted foods as well as the malt soups and dextrinized gruels also contain a small quantity of vegetable fiber (cellulose) derived from the cell walls of the cereals, which also tends to render the curds more porous, besides mildly stimulating peristalsis.

THE LAXATIVE PROPERTIES OF MALTED FOODS

As has been stated before, all sugars used in strong solutions tend to produce looseness of the bowels, and as the malted or Liebig foods average fully eighty per cent of soluble carbohydrates — sugar (maltose and dextrin), these foods *when used in concentrated form* will produce the same effect. This, with the small amount of cellulose contained in some of the malted foods, which has already been referred to, explains the more or less well-deserved reputation of the malted foods to relieve the constipation so prevalent amongst artificially fed infants; but there is no reason why a properly made malted food should, when used in quantities ordinarily indicated, result in unduly loose stools or diarrhea. I make frequent use of malted foods in proper quantities in cases of severe diarrhea, with excellent results. Naturally, some infants can take a relatively large quantity of any kind of sugar without causing the slightest dyspeptic symptoms or a tendency to abnormal (acid) fermentation with resulting thin, acid, diarrheal stools; others again are ⁱⁿ readily upset by comparatively small amounts of sugar.

In case of special liability to carbohydrate fermentation, and in certain forms of gastro-intestinal diseases where food stagnation prevents the normal digestion and absorption of sugar, the malted foods, especially when fed in excess or in too concentrated dosage, may at times produce excessively loose stools. In these cases it is not necessary to completely withdraw, but simply to reduce the quantity of the malted food in subsequent feedings, in other words, adjust the quantity of the malted food to meet the individual requirement of the case. It is also good practice in the case of infants with loose stools to add to the malted food, or in place of part of the malted food, temporarily, a small quantity of bland, starchy food material, the tendency of which, as we have seen, is constipating. This is most simply done by preparing the malted food with weak barley water, rice water, or, still better, arrowroot water in place of plain water.

The malted foods enjoy an excellent reputation as a suitable food for both sick and well infants. They provide soluble carbohydrates in a most absorbable form, they modify the casein of the milk, and increase the quantity of readily absorbable tissue-building material.

By varying the proportion of the malted food, milk, cream, and water, any practically desirable mixture can be obtained, and the food adapted to the digestive capacity and nutritive requirements of the individual infant.*

The conditions where the malted foods are of special service include many where the ordinary modification of milk has proven unsuccessful. This applies to cases where the fats and proteids are giving trouble (fat and proteid indigestion); subacute and chronic nutritive disturbances and especially marasmus and the numerous cases where the infant, although fed correctly in theory, has failed to thrive and has remained more or less stationary in weight.

Anent the diet of atrophic infants, Koplik remarks: "It is surprising to see how some of these atrophic babies who will not do well on any ordinary modification of milk will thrive on some malted preparation of milk, or on milk diluted with some of the malted gruels."

The fact that most if not all of these foods belong to the class of foods known as proprietary foods ought to be no objection to their use in scientific infant feeding. Koplik's comment on infant foods, "They are certainly useful, and it will repay the physician to *try to understand the indications for their use*" (*italics mine*), is very much to the point.

It is to be regretted that so eminent a pediatricist as Rotch takes a different point of view. In a paper read before the American Medical Association (Journal of the American Medical Association, Oct. 10th, 1908, page 1223), Rotch said amongst other things, "Do not hesitate to sweep away the foods, patent and proprietary, owned by the capitalists, who have been leading us by a false nose for years. There is no reason why we should use these malted foods. There is no occasion to use any of them. It is degrading that we should use products that are put on the market for the purpose of making money and not for the good of the infant. . . . The carbohydrates are merely one of the food constituents. If in a proprietary food it is a certain amount of maltose that is doing good, why not prescribe that percentage of maltose?"

But how do we know that it is the maltose in the proprietary food,

*Apropos of the advisability to adapt the malted foods to the digestive capacity and nutritive requirements of the individual infant, it is interesting that as early as 1867 Ullersperger (Journal für Kinder-Krankheiten) in his plea for a more rational use of Liebig's Soup suggests "That the soup be modified in strength as well as quantity, according to the age, constitution, physical needs and digestive capacity of the infant, the physician to be the judge of the modifications required," which sentence places Ullersperger in the front rank of the earlier apostles of rational home modification of cow's milk for artificially fed infants.

and the maltose only, *that is doing good?* Most, if not all of the proprietary foods containing maltose contain in addition to maltose and dextrin, an appreciable quantity of soluble cereal protein material along with sufficient potassium salts or a mixture of potassium and sodium salts to render the food alkaline. What proof have we that the ingredients in the malted foods other than maltose *are not doing good?*

Again, why imitate, why substitute, why not use the product which, quoting Rotch, "has apparently produced good results," why not use the original? Admitting that these foods are patented, proprietary, and owned by capitalists for the purpose of making money, the same applies with equal force to milk laboratories and their products.*

What reasons have we for believing that the laboratory product will be as effective as the product "that has *apparently* produced good results"? The various malted foods of commerce differ in chemical composition *some*, but in the quality of their several ingredients they differ *very materially* from each other, which is a matter of no mean importance; the process of manufacture followed by different manufacturers also present material differences, with the result that malted foods which may present comparatively unimportant differences in chemical composition produce widely different results clinically. The writer, who has experimented with a number of malted foods somewhat similar in chemical composition, has repeatedly secured most gratifying results from the use of one that he failed to secure from the other.

Dr. Rotch is evidently not in sympathy with a writer in *American*

*One pint of a fifty per cent solution of maltose sold by the Walker-Gordon Laboratory sells at fifty cents per pint. An analysis of this product made for me by a competent chemist shows the following composition:

49.09 maltose	35.64 water
13.06 dextrin	0.81 ash
1.40 albumenoids	

Horlick's Food, one of the best examples of the malted or Liebig foods, and made in this country since 1873, can be bought as low as fifty cents per pound, and has the following composition:

Water,	1.97
Ash	2.60
Proteid,	12.06
Fat,	1.40
Soluble Carbohydrates, maltose and dextrin,	81.97

100.00

100 c.c. of Horlick's Food equal 381.51 calories.

1 ounce of Horlick's Food equals 109.28 calories.

1 level tablespoonful of Horlick's Food weighs 125 grains (8.3 grams).	Carbo-	
1 level tablespoonful of Horlick's Food added to any 16 ounce mixture increases the percentages of that mixture.	hydrates	Proteids
1 level tablespoonful of Horlick's Food added to any 20 ounce mixture	1.41	.20
1 level tablespoonful of Horlick's Food added to any 24 ounce mixture	1.13	.16
1 ounce (by weight) of Horlick's Food added to any 16 ounce mixture	.94	.13
1 ounce (by weight) of Horlick's Food added to any 20 ounce mixture	4.63	.68
1 ounce (by weight) of Horlick's Food added to any 24 ounce mixture	3.75	.55
1 ounce (by weight) of Horlick's Food added to any 24 ounce mixture	3.13	.46

Medicine, who, treating of proprietaries and substitutes for same, concludes as follows:

"If a proprietary is baneful or useless its substitute will be no better, and by the same token, if a substitute is valuable and useful, the original, with its added feature of commercial responsibility will be a hundred times preferable."— *American Medicine*.

I know of no good reason why the food formula originated by Liebig, with processes improved upon by later workers, whose products after some thirty to forty years of more or less misrepresentation, finally attracting the attention and earning the approval of the leading pediatricists in Europe and America, should not receive the attention, and if found useful, the support of the medical profession.

CONCLUSIONS

Infants differ in sugar capacity as well as in fat and proteid capacity.

Excess of sugar results at times in various and more or less serious digestive and other nutritive disturbances.

The form of carbohydrate used in the artificial feeding of infants is by no means a matter of indifference.

While it is true that all forms of sugar have their special indications in the artificial feeding of infants, maltose possesses a number of advantages over other sugars, placing it at the head of suitable carbohydrates in the artificial feeding of infants. From the fact that lactose, in addition to other disadvantages, is more slowly absorbed, has a much lower assimilation limit than maltose, and results in much slower gain in weight, than is the case with maltose, it is best to make up the deficiency of sugar brought about by the dilution of milk in the process of modification with maltose instead of lactose. The best method of utilizing maltose is in the form of maltose-dextrin mixtures as found in a properly made malted food of the Liebig type.

These foods are most convenient, requiring only the addition of milk and water; they possess excellent keeping qualities, are alkaline in reaction and contain maltose and dextrin in definite quantities, along with an equally definite quantity of soluble cereal proteid material.

In addition to supplying the most digestible and assimilable carbohydrates and soluble proteids available for tissue building, these foods contribute materially in rendering the proteids of cows' milk more digestible and assimilable, and in this way aid in achieving results not obtainable by simple additions of sugar.

THE MEDICAL ROUND TABLE

ASCLEPIAS TUBEROSA

Editor Journal of Therapeutics and Dietetics

THE study made of this drug by "The Eclectic League for Drug Research" suggests the following as its field of action:

Irritative or inflammatory states of the skin and lining membranes, associated with dryness or febrile action and lack of elimination; or with exudation, pain, and other evidences of a disturbed capillary circulation.

✦ The diseases in which it is most often useful are pneumonia, pleurisy, enteritis, and acute general febrile conditions. It is a mild, kindly remedy, but enhances the action of almost any drug indicated in acute febrile diseases, such drugs as aconite, gelsemium, drosera, ipecac, etc. It undoubtedly controls capillary congestion with irritation and exudation; and as an eliminant through its power of equalizing the circulation, its action is undisputable. Such actions upon the skin, kidneys, bowels, and upon all the eliminating organs, are well known. E. D. Jones, M.D., of New Jersey, considers it without a rival in intercostal rheumatism, while J. A. Farabough, M.D., of Kentucky, has used it combined in the first stages of pneumonia for thirty years with excellent results. Dr. Waddington, Detroit, calls especial attention to its use in the urinary suppression following scarlet fever, and mentions scanty, high-colored urine as a specific indication for its employment.

It has seemed in two cases of chronic nephritis to have removed all traces of albumen; in one case especially, reducing the specific gravity of the urine from 1030 to 1020 normal, at the same time removing the signs which primarily led to its employment, viz., emaciation, dry skin, with an almost imperceptible persistently itching eruption. Both patients made great gain. Where a soother and healer to a membrane is needed, it should be studied.—*W. Leming, M.D.*

Alkalies.—A broad and pallid tongue, with a coating that is pasty and white, or yellowish white, and mucous membranes that are uniformly pallid, calls for an alkali. The sodium bicarbonate is one of the best, and may be given in v to x grain doses—well diluted with water—every two hours.

THERAPEUTIC NUGGETS

SOME THROAT REMEDIES

Sanguinaria Nitrate.— Your patient will complain of a tickling sensation in the larynx, combined with a burning feeling; the membranes are red and feel dry. These conditions are usually accompanied with a cough that is hard and dry and the secretion is scanty and difficult to raise. When such a picture is presented for treatment remember the *Sanguinaria Nitrate*. *Dose*: Grains one to two should be added to four ounces of equal parts of simple syrup and water and this mixture be given in teaspoonful doses from every hour to every three hours, according as the case is acute or chronic, the latter requiring the less frequent dose.

Spec. Med. Phytolacca.— The indications for this remedy are very plain and easily remembered, You will find the membranes of the throat of a pallid, ashy-gray color, the lymphatic glands are frequently enlarged, and there is usually considerable temperature. In such cases this drug will be found useful both internally and as an application to the mucous membranes of the throat. *Dose*: For internal use add gtts. xv to xx to aqua iv℥ and give i℥ every hour. For the topical application one to two drachms of the *Spec. Med. Phytolacca* should be added to four ounces of water and the solution be used with an atomizer, or as a gargle every two or three hours.

Spec. Med. Lobelia.— When there is a profuse secretion in the throat, combined with difficult breathing and a sense of oppression the use of this drug will afford prompt relief. *Dose*: Add gtts. v to x to aqua iv℥, and direct a teaspoonful to be given every half hour until the breathing is more natural and the oppressed feeling has departed.

Spongia Test. 3x.— Three grains of the 3x of this agent may be given to good advantage every one or two hours, when your patient tells you that there is pain in the larynx, if the head is turned, or if it is touched. The voice will be husky and the throat dry and burning.

Spec. Med. Collinsonia.— This is the remedy, *par excellence*, for chronic inflammations of the mucous membranes of the pharynx and larynx, especially if this condition has been brought about by a constant use of the vocal organs. *Dose*: Add xv to xxx gtts. to iv℥ of aqua, and give teaspoonful doses every hour.

Spec. Med. Drosera.— You are called upon to prescribe for a dry cough that is continually asserting itself by a constant sense of tickling in the larynx. Examination reveals a reddened mucous membrane. Add gtts. x to xx to iv℥ of water and give in teaspoonful doses every hour and your patient will be quickly relieved.

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EDITORIALS

THE PLACE OF THERAPEUTICS IN MEDICINE

To heal the sick and relieve the suffering has always been looked upon as the essential part of the physician's work. It is true that in modern times to this has been added the teaching of the means of preserving health, which constitutes the science of preventive medicine. But this portion of his work has always been subordinated to the other and supposedly more practical part, and has been compelled to occupy the position of a side issue, as compared with the serious business of life. Men are more willing to pay for the restoration of health than for its preservation, for the cure of disease than for its prevention; and so long as the doctor is dependent on the patronage of individuals for his support, just so long will the art of therapeutics, which is the application of remedies to the treatment of disease, continue to be regarded as the most important part of medicine.

From this point of view, the surgeon is as really a therapist as the physician; the different schools of medicine stand on the same footing; and the needle and the knife, the x-ray and the electric battery, hypnotism and suggestion, the galenics and the elegant products of modern pharmacy, metallic substances and coal-tar products, the alkaloids and specific medicines, and even diet and hygiene, are all equally a part of the *materia medica*.

There is in matters relating to therapeutics, even more than in most other departments of medicine, a very prevalent and most healthy diversity of opinions and practice. If this were not the case, if uniformity prevailed instead of diversity, then the practise of medicine would soon degenerate into the merest matter of routine, and all that would be needed to equip one for bedside work would be a book of formularies, a box of specifics, or a manufacturing pharmacist's catalogue. The study of individual cases would no longer be needed, except to determine the name of the disease. Independent thought would be at a discount.

As illustrating the opposite results to which this diversity of opinion leads in different individuals, we note on the one hand, that already in some states the subject of therapeutics is no longer given a place in the examinations of the state board for licenses to practice, which are given regardless of any knowledge of this subject, either theoretical or practical. We also see on the part of many of the most widely known members of the profession, some of whom assume to be its leaders, a contempt for drugs, and a tendency to therapeutic nihilism.

On the other hand, there has been a very general revival of interest in therapeutics on the part of the profession at large. If any one questions this statement, let him consult a file of his favorite medical journal, and compare the stated issues of say fifteen years ago with those of the current year, with regard to the number of articles published on and the amount of space devoted to therapeutics in general, and drug therapeutics in particular, during the two periods. Fifteen years ago it was quite an unusual matter to find in any journal of the regular school an article discussing the actions and uses of any single drug, except perhaps it were a new remedy, exploited by some drug firm interested in its manufacture. To-day studies of drugs new and old, from an entirely impartial standpoint, are met with on every hand, and are read with eagerness by a large and increasing number of practising physicians.

The explanation of this anomaly is found in the point of view. The men on the firing line, represented by the general practitioner in the cities, and the country doctor in general, are compelled by the exigencies of their practice, and the necessity of success, to avail themselves of any and every means for the relief of suffering and the cure of disease, and hence are giving close attention to therapeutics, including medicinal

drugs and every physical and mental force which can be made subservient to this end. On the other hand, the so-called leaders of the profession are no longer dependent for their daily bread upon their success in the treatment of the sick, and hence have turned their attention from the practical to the theoretical branches, such as etiology, pathology, and diagnosis, and have gradually lost all interest in the things which they have left behind. It is human nature to belittle the things one does not understand. It was Oliver Wendell Holmes, the poet, anatomist, and philosopher, who made the oft-quoted and much-misunderstood remark to the effect that if all the drugs in the world were thrown into the sea, it would be all the better for mankind and the worse for the fishes. But Doctor Holmes never saw the sun rise upon the day on which he could make his living by the practice of medicine, while as a teacher of anatomy he was quite above the common run, and as a poet and philosopher he had few equals in his day. It may readily be admitted that as a literary man he did more good to the world than most of us will ever do by the practice of medicine. But he knew very little about therapeutics.

So too with Osler, the witty after-dinner speaker, the wise teacher of medicine, the genial good fellow, the expert pathologist and diagnostician, but the poor practitioner of the healing art. When he says that pneumonia is a self-limited disease, which can neither be aborted nor cut short by any known means at our command, but which runs its course uninfluenced in any way by medicine, he shows himself to be what he is, a know-nothing in the treatment of disease. Any country doctor can tell him better. But he was simply talking from his own point of view. He spoke concerning his own knowledge. Thousands of general practitioners of all schools know better, for they can abort a considerable proportion of cases of pneumonia, or, failing in that, can favorably modify their course and termination.

After all is said and done, therapeutics occupies the center of the stage, and is more than ever in the limelight. When will our leaders lead?

J. M. F.

Begin with a generous heart. Think how you can serve others. Then you shall find your resources grow. Your own portion shall not be left desolate. Strength shall be shed through you. Do the utmost with what you have, and it shall go far enough. O. B. FROTHINGHAM.

DEPARTMENT OF THERAPEUTICS

THE MODERN TREATMENT OF SYPHILIS

BY HERBERT MCINTOSH, A.M., M.D., BOSTON, MASS.

*Read before the New England Alumni of the New York Medical Colleges
April 1909*

Prophylaxis.—As shown by Professors Roux and Metchnikoff, the poison of syphilis is unstable and easily destroyed in the laboratory by drying, by cooling to a point below 50° F., and by heating for half an hour to a temperature of 122° F.

Thorough inunction of a mercurial preparation at the site of experimental inoculation with a virus which control experiments have shown to be active, will prevent infection if made within eighteen and one half hours of the time of inoculation. This experiment was performed upon Dr. Paul Maisonneuve, the grandson of Dr. J. G. Maisonneuve, the great French surgeon, who was inoculated with an active virus of syphilis February 16, 1906. Experiment has further shown that if the inunction is later than this protection is not secured.

There is some evidence that the virus of syphilis is attenuated in passing from one group of apes to another, or from man to a chimpanzee. Generally, however, attempts to produce immunity by sera have failed.

It is doubtless upon the strength of this unsuccessful attempt to inoculate Dr. Maisonneuve with the virus of syphilis after preliminary inunction with a mercurial ointment and experiments of a somewhat similar nature that physicians sometimes recommend to those who expose themselves by impure sexual relations to the danger of infection from syphilis, to anoint the glans with a mercurial ointment before the act, or thoroughly wash it with a mercurial lotion immediately afterward. Yet it has been shown that a patient under the influence of mercury may contract syphilis.

The sheet anchor of syphilitic treatment is mercury. That position is more unassailable to-day than ever. While recognizing the role which iodide of potassium plays in the tertiary stage of syphilis, we still affirm that mercury is the great support of syphilitic treatment in all stages.

Frankly we must admit that the method by which it works is not positively known. It may actually destroy the poison, or it may produce alexins, and thus indirectly destroy it. The amount of mercury necessary

to cure has been found to be very small. Thus it was determined by actual experiment after inunction that the amount of mercury absorbed was only 0.06 of a grain.

Initial Lesion.— If the physician is sure that the sore which presents itself is the initial lesion, he may begin treatment immediately without waiting for the appearance of the secondary manifestations. Excision has been found to be of no advantage. The importance of cleanliness is readily appreciated, and the use of calomel powder mixed with a variable proportion of starch admirably serves to promote healing.

Cupric phoresis.— An excellent method of healing the primary sore is as follows: Attach a small copper electrode to the positive pole of the constant current battery, the negative being connected with a well-moistened pad applied to the thigh or abdomen. Apply the copper electrode to the sore and permit a current of from five to fifteen milliamperes to pass for four or five minutes. The raw surface immediately turns green, owing to the electrolytic production of the oxychloride of copper. This is a powerful antiseptic, which is carried by the action of the current deep into the damaged tissue and quickly promotes repair.

In like manner the introduction of the soluble salts of mercury into the tissues by means of phoresis serves a most useful purpose. This is not designed to take the place of systemic medication, but rather to hasten the disappearance and incidentally to change the color of the telltale lesions, particularly when they are located upon the face. The parts are thoroughly washed with soap and water, then bathed in alcohol. An electrode attached to the positive pole is then saturated with a solution of corrosive sublimate, one to three or four hundred, and applied to the lesions. The characteristic color of the syphilide promptly disappears under this method of treatment.

It seems hardly necessary to discuss the classical methods of treatment with which we are all familiar, viz., by inunction, by fumigation, and by oral administration. The advantages and disadvantages of these methods are well understood and do not require to be discussed in a brief paper. Of recent years fresh emphasis has come to be placed upon the method of hypodermic administration, and for this purpose a variety of salts, soluble and insoluble, has been employed. The method of hypodermic administration was first used upon a large scale by Scarenzio, of Pavia, in 1854, though Hebra doubtless used it earlier. Lewin published his results in 1867. His method was to dissolve from one sixteenth to one eighth of a grain of corrosive sublimate in fifteen minims of distilled water. This he injected deeply into the back between the scapulæ or in the gluteal region. These injections may be given daily or less often in proportion to the severity of the symptoms. Where it is desirable to make a rapid impression upon the syphilitic condition, as in iritis, lesions of the

nails, syphilitic eruptions of the hands or face, or where the ordinary administration of mercury is slow in its action, this method serves an admirable purpose. Further than this it enables the physician to keep his patient under supervision, to see him frequently, and thus exercise that vigilance in the management of the disease which its seriousness demands.

There are some syphilologists who use as high as three fourths of a grain or more of the bichloride of mercury at one dose. These doses seem to the writer to be unnecessarily severe, and soon produce disagreeable effects, which necessitate a reduction in the amount of the dose. Many other preparations have been used for hypodermic medication, as, for instance, calomel, the formamide of mercury devised by Liebrich, and the yellow oxide of mercury.

Hypodermic injections may be either into the tissues or into the veins, that is to say, *intra-muscular* or *intra-venous*, and the form of mercury employed may be (a) metallic mercury, (b) the soluble salts of mercury, or (c) the insoluble salts of mercury.

The simpler the method, the less seldom the injection, the less complex the compound introduced, the more likely are the best results to be obtained.

1. Metallic mercury is injected in a finely subdivided condition as gray oil (*oleum cinereum*), and was first used by Professor E. Lang, of Vienna, 1841.

The formula is:

℞ Lanolin anhydrici ℥iv.
Chloroform ℥iss. *Misce*

Evaporate in a large mortar with continued stirring, and then add *hydrargyri vivi depurati* ℥i.

The dose is one minim for an injection. This equals one grain, and is administered once a week.

2. Of the insoluble salts calomel and the salicylate of mercury are most frequently employed. Calomel should be sublimed and must be sterilized before injection, by boiling in alcohol. It is then suspended in vaseline or olive oil, in glycerine, oil of almonds, or distilled water. The following prescription may be employed.

℞ Sublimed calomel, gr. viiss.
Sterilized olive oil, ℥xiv. *Misce*

Seventeen minims of the solution contains nearly five sevenths of a grain of calomel. The objection to calomel is the pain it produces in many people. Five sevenths of a grain is an average dose. The injection should be given once a week.

Professor Fournier says: "Calomel injections act extraordinarily well, and produce results which cannot be obtained by usual remedies

unless they are administered in very large doses, which may be dangerous. It is well fitted for the treatment of malignant syphilis, for later forms of inherited syphilis, for obstinate inflammations of the tongue occurring in the later stages, and for such troublesome and dangerous affections as syphilitic inflammations of the larynx."

The formula for the other preparation of the insoluble salts most commonly used is

R_x Basic salicylate of mercury ℥i
Oil of vaseline ℥i *Misce*

Eight drops contain one grain.

The usual dose is from one half to one grain.

The following insoluble salts may also be employed :

Thymol acetate, of which the dose is two grains in sterilized vaseline. This is said to be better tolerated than calomel or the salicylate of mercury.

Mercury soziodolate, of which the dose is one third of a grain suspended in sterilized oil of vaseline and administered weekly, and mercury carbolate, which is a urate of mercury.

3. The soluble preparations are so numerous that no pretense is made of giving all of them. Some of them are as follows:

(a).—Corrosive sublimate. This has already been referred to above. A good formula for easy administration is:

R_x Corrosive sublimate gr. xxiv.
Sod. chloride gr. xvi
Distilled water. ℥iiss *Misce*

Seventeen minims equals one thirteenth of a grain of mercury.

Professor Taylor says: "Extended experience has convinced me that the most efficient dose of bichloride when used hypodermically is one fourth of a grain, and it may be increased in some cases to five eighths or three fourths of a grain. It is usual to begin with injections of one eighth of a grain and to increase up to one fourth of a grain or higher.

(b.)—The peptonate of mercury. This is a mixture of peptones, corrosive sublimate, and chloride of ammonium in glycerine and water; dose one fourth grain.

(c.)—The cacodylate of mercury, of which the dose is one half grain.

(d.)—Mercury succinimide of which the dose is one fifth grain. This is said to produce less local irritation than many of the other compounds.

(e.)—Sublamin, which contains forty-three per cent of mercury.

(f.)—The cyanide of mercury, which is useful in children. Dose one fourteenth of a grain.

(g.)—The benzoate of mercury, which is rendered soluble by the addition of sodium chloride.

Intravenous injections.—These were introduced by Professor Bacelli

in 1893. The most frequent injections are the perchloride, the cyanide, and the biniodide of mercury, of which the doses are one thirtieth to one seventh of a grain.

The advantages of this method are that the injections are painless, and do not interfere with digestion.

The following is the method employed in administering intravenous injections:

Tie a bandage over the bend of the elbow, extend the arm rigidly, and close the hand firmly. Wipe the skin over the vein with a mixture of ether and alcohol. Freeze with ethyl chloride and insert needle. It is best to use a large syringe. Draw the blood back into the syringe, thus forming an albuminate which is less apt to irritate the walls of the veins.

Organic compounds of arsenic.— These have been used to some extent in the treatment of syphilis, because they have been found useful in the sleeping sickness, which is due to a similar micro-organism. The best known compound of this class is atoxyl, which is a sodium compound of arsenic, containing 27 per cent of the latter.

The dose is six grains dissolved in water and given every alternate night, until eight injections have been administered. It should not be given by mouth.

It may cause certain toxic symptoms, chief among which are jaundice, vague pains in arms and legs, general weakness, loss of appetite, vomiting, and painful micturition.

It is by no means certain yet that atoxyl cures syphilis.

Two other compounds have recently been introduced,— one called kharsin, the other asodyl. The former contains 25.4 per cent arsenic, the latter 2.48 per cent.

In this brief paper I have sought to present an outline of the more recent advances, if such they may be regarded, in the treatment of syphilis. They concern themselves almost entirely in the method of administration of the one drug which time has only served to establish more firmly in the confidence of the profession. It is, of course, possible that sera may sometime supersede this great and specific remedy in the treatment of syphilis, yet there would seem to be less reason for the ardent pursuit of such studies here than in other diseases where no such means for combating disease already exist.

There is full compensation for failure in every true life, and the highest, when the struggle and the lost have been the deepest.

JOHN KER.

CHRONIC DISEASES AND THEIR TREATMENT

BY PIRTS EDWIN HOWES, M.D., BOSTON, MASS.

AMONG the many deviations from the normal workings of that wondrous mechanism known as *man*, there are none that require so much care as those conditions designated as chronic diseases.

Their very title shows the insidious character of the factors with which you are obliged to engage. What may have been a very simple matter at the outset has become, as time passed away, a most intricate problem.

The medical man who aspires to achieve an enviable reputation for the successful treatment of this class of ailments must, perforce, possess three very essential qualities in a very strong degree. You may remember them better if I designate them as the three "P's," *viz.*, PAINSTAKING, PATIENCE, and PERSEVERANCE. Unless these ingredients are incorporated with the various methods of treatment that are used, the result instead of being what is desired is exceedingly apt to result in a dismal failure.

Let us examine their necessity a little more carefully. *Painstaking*: When your chronic patients first present themselves for treatment it is of the utmost importance that you should be thorough in your examination of the various causes which led up to the conditions that are now brought to you for curative treatment. Painstaking in elucidating all the minor points of the history, which possibly may go back a number of years, is very essential if you are to lay down a line of treatment that will produce the required results. Indeed, many times some of the little pointers in the clinical history prove to be the cornerstone upon which you are to erect your successful attempt to restore your patients to their normal conditions.

The second and third "P's"—*Patience and Perseverance*—must be possessed by the physician and the patients, in a superlative degree, if the abnormal conditions are to be replaced by those of a healthy and pleasureable action.

While *Painstaking* may be rightly denominated the cornerstone, so *Patience and Perseverance* are the framework upon which the structure is to be constructed that will fill the demands of both parties.

As your patients have been a long time in getting into the state in which they present themselves for treatment, just so sure is it that they will be an equally long time in obtaining the restoration to the normal conditions desired. This fact must be thoroughly impressed upon them at the outset and their mind prepared to work in unison with you in your efforts for a cure.

Many times you will treat your patients for a long period without

much apparent benefit, and yet the improvement is taking place, although almost imperceptible. In such instances *Patience* and *Perseverance* prove good friends to you both.

While these two are invaluable in their aid to treatment it must be admitted that they are, in some cases, cultivated with great difficulty; yet they are of the utmost importance in their bearing upon the successful outcome of all attempts to place your patients in their normal condition.

From the very fact that the progress in the cure of this class of patients is so slow, it becomes necessary that the armamentarium of the physician who treats them should be more complete than he who is mostly called upon to prescribe for those ailments of a more acute character.

The range of remedies that may be needed is more extensive; the entire category of physical therapy may be needed, at times, to produce the end sought.

In almost every case, as far as my experience has gone, you will find that there is some particular thing in treatment that is *basic* and must be continued during the whole period if you would win success. Incidentally there may be many things that will enter into the correct treatment and should be continued just as long as they are demanded by their indications.

The method of treating abnormal conditions by means of the indicated remedy has gained much credit for what it has done, and is accomplishing, in the restoration of the normal state to those who for a long time have been getting farther and farther away from the correct functions of their physical and mental natures.

I have purposely refrained from mentioning diseases and the particular method adapted to their cure, but have rather attempted to lay down those broad principles which must underlie all successful attempts to produce that for which the medical man is employed.

In closing I cannot do better than emphasize the three "P's" that were mentioned at the beginning — *Painstaking*, *Patience*, and *Perseverance*, and the more closely their full meaning is adhered to by both physician and patients, the more praiseworthy will be their efforts.

LUPULIN

BY LILLIAN G. BULLOCK, MANCHESTER, N. H.

LUPULIN is the glandular powder separated from the strobiles or fruit canes of *humulus lupulus*, Nat. Ord. *Urticacæ*.

On beating or rubbing the hops and then sifting them, the glandular powder which is adhering to the anthers and bracts of the strobiles and which is known in medicine as lupulin is obtained.

This powder is a bright brownish-yellow, becoming yellowish-brown on exposure, and has the odor and taste common to hops, to which it is always to be preferred for internal medication.

It is reputed to produce various therapeutic actions, but its chief value lies in its sedative properties. It is of great value in mild cases of delirium tremens, as it acts both as a stomachic tonic and a cerebral sedative. Bartholow suggests as a substitute for alcoholic stimulants, the following:

R^x Ext. fld. lupulin.

Tr. capsicum aa \mathfrak{z} i.

Sig. \mathfrak{z} ss to \mathfrak{z} ii as necessary.

The condition known as "horrors" or the wakefulness and excitement of the prodromal stage of delirium tremens may often be removed by the free use of this combination. Infusion of hops is also useful during recovery from a debauch or during treatment for alcoholism or the opium habit.

For the wakefulness of nervous exhaustion it is useful and does not derange the stomach or cause constipation, as with opium.

Lupulin has been found especially useful in all kinds of irritation of the genito-urinary tract. Irritable bladder, priapism, chordee, seminal emissions, incontinence of urine, and sexual erethism in its varied phases yield to lupulin. It allays the irritation, promotes sleep, and checks the emission in quite a number of cases. For incontinence of urine in nervous children, combine belladonna with lupulin.

The following has been found useful in dysmenorrhea:

R^x Oil of chamomile, fl. \mathfrak{z} i.

Ethereal oil of lupulin, fl. \mathfrak{z} iss.

Sulphuric ether, fl. \mathfrak{z} iv.

Sig. \mathfrak{z} ss to \mathfrak{z} i every three or four hours.

The tincture of lupulin, as well as tincture of hops, may be used with good results as a stomachic tonic. Given before meals it increases the appetite and aids digestion. Use it when fermentation and eructations occur after meals, and in dyspepsia with marked restlessness and disposition to brood over trouble. Use it also for insomnia due to worry or neurasthenia.

Felter gives the following specific indications and uses: Nervousness, irritability, disposition to brood over trouble, delirium, insomnia, cerebral hyperemia, fermentative dyspepsia, with acid eructations; genital and mental irritability associated with spermatorrhea.

Hops are useful externally as a sedative or soporific. In the form of a fomentation alone, or combined with boneset or other bitter herbs, hops have proved beneficial in pneumonia, pleurisy, gastritis, and enteritis. For the relief of pain anywhere, the hop-bag — dipped into hot water,

applied locally, and covered with oiled silk — is a useful and efficient remedy.


The hop poultice may be made by mixing hops with flaxseed. Hops enclosed in a flannel bag and then dipped in hot whiskey and applied locally for toothache or earache will often bring relief. From time immemorial the hop pillow has been used for insomnia, especially when associated with neurasthenia.

A NEW INSTRUMENT FOR THE ESTIMATION OF THE URINARY ACIDITY

BY HENRY R. HARROWER, M.D.

IN an attempt to simplify the technique of the various laboratory estimations, which should be much more frequently made by every general practitioner, I have for some time been working with a very simple little instrument which I have found useful in the estimation of the urinary acidity.

It is not intended to supplant the very necessary graduated burette employed by workers in the larger clinical laboratories, but to provide the wherewithal for the busy man to perform this important test in daily routine. The idea was gained from a very handy little tube invented by Gunzberg for the estimation of the acidity of the gastric juice.



The acidimeter which I have designed consists of a glass tube so graduated that ten cc. is the first measuring point. From this upward the tube is graduated in fifths of a degree to one hundred degrees, each degree representing the amount of decinormal sodium hydroxide solution required to neutralize one hundred cc. of urine. The method of using the acidimeter is as follows: The tube is filled with the specimen of urine to be tested, until the lower edge of the meniscus is just on the ten cc. mark. Two drops of phenolphthalein indicator solution are added, and then with an ordinary medicine dropper decinormal sodium hydroxide solution is slowly added, inverting the tube after each addition, until the color of the fluid has just been changed from a yellow to a light rose pink. The acidity in degrees is now read off on the tube at the level of the fluid. The normal urinary acidity of a mixed twenty-four hour specimen should be between thirty and forty degrees.

(With very concentrated urines in which the acidity is above one hundred degrees the tube may be filled to the five cc. mark and water to the usual level. The resulting figures are, of course, doubled.)

If the urine is alkaline in reaction and it is desired to estimate the degree of alkalinity, decinormal hydrochloric or oxalic-acid solution must be used in place of the sodium hydroxide, the pink color present being just discharged by the acid.

The advantages of this instrument are:

1. Facility of handling; it can be carried in the pocket or bag and is not easily broken, as is the burette. No stand is required.
2. Accuracy of results, the graduations being just the same as in the standard delivery burette.
3. Price; the first cost is considerably less than that of a burette, and as the acidimeter is far less liable to breakage the eventual cost is very much less.
4. Simplicity; the test can be carried on by almost any one, the office attendant or the doctor's wife may be quickly taught its rapid and accurate use.

I believe that this instrument will simplify the present laboratory facilities of the medical man, thus increasing his diagnostic capabilities and his professional success.— *New York Medical Journal*, Jan. 2, 1909.

GELSEMIUM SEMPERVIRENS, OR YELLOW JESSAMEN

BY AUGUSTUS L. CHASE, M.D., RANDOLPH, MASS.

THE part employed is the rhizome and roots. The plant grows in the southern United States; it is a climbing vine, ascending lofty trees and growing in moist woods from Virginia to Alabama, flowering from January to April, forming festoons from tree to tree, and is covered with large, yellow, fragrant blossoms. The vine always runs to the top of the tree on which it fastens and spreads a thick foliage.

The vine is the same size from the top to the bottom. The stem is twining, smooth, shining, hollow, and of a green-purplish color.

The rhizome which runs just under the surface of the ground is from fifteen to thirty feet long, and about one inch in diameter, externally snuff colored, with purplish longitudinal lines, and breaks with a tough splintery fracture; it is of an intense yellow color within, bark thin with a silky fiber, wood porous, with white medullary rays, dark pitch, rootlets same color as rhizome, with longitudinal wrinkles, numerous scars and yellowish diploe, odor heavy aromatic, taste pleasantly bitter; solvent is dilute alcohol (Ellingwood).

Gelsemium is used in nervous conditions. The specific indications for its use are "the flushed face, bright eyes, and contracted pupils." Given

a case with these conditions it is always curative, and almost a certain remedy for headaches accompanied with these symptoms. An overdose usually causes great depression of the nervous system, with dizziness, double vision, dilated pupils, great prostration, and drooping of the upper eyelids from paralysis of the levator palpebra superioris muscle, and inability to keep the jaws closed. Temperature reduced, pulse lowered, with dyspnea, the breathing being accomplished with much effort. Death may result from paralysis of the respiratory muscles, including the diaphragm.

Its influence appears to be exercised upon the base of the brain and spinal cord; its direct action is upon the central nervous system, diminishing the blood supply to the brain and nervous system.

I always use a tincture made from the green root, as I believe a preparation of this remedy made from the dried drug is practically worthless.

The green root should be gathered in the early spring and the tincture made from it immediately.

Its use is especially indicated in all fibrile diseases where there is a determination of blood to the brain and nerve centers. A very common prescription of mine is to combine this remedy with aconite, in small and frequent doses. If you begin to get the specific effect, getting drooping of the eyelids, discontinue the remedy for a time and it will pass away, although it might prove fatal if given too long and in too large doses. Although I have used it a great deal, and in pretty full doses, I have never had any trouble from its use.

I remember during my first year in practice attending a case of child-birth, where the patient had had convulsions at a previous confinement, and after the placenta had been delivered she had a convulsion, and I immediately gave her a teaspoonful of the tincture, and there were no more convulsions. I should not like to repeat this dose.

I have used this drug many times in cases where there was spasms of the sphincter muscles, especially of the bladder, with marked benefit to my patient.

In the early treatment of gonorrhea I usually add this drug as one of the remedies, and with beneficial effect. It is also useful in cases of spermatorrhea, in neuralgia and dysmenorrhea of a spasmodic type; in cases of uterine colic it gives prompt relief.

In cases of la grippe a favorite prescription is tincture gelsemium $\mathfrak{z}\text{i}$, tincture veratrum vir. gtts xx to $\mathfrak{z}\text{iv}$ water, alternated with tincture macrotys (gum root) $\mathfrak{z}\text{i}$ to water $\mathfrak{z}\text{iv}$, in alternation, teaspoonful every hour, and usually find my patient better the next day. I never give the coal tar products, as I believe they are heart depressants and are the cause of many of our sudden deaths in la grippe.

In inflammation of the uterus and its appendages, also in appendicitis, this remedy will prove valuable.

If I should be so unfortunate as to have a case of tetanus I do not know of a remedy that I should have more confidence in than the gelsemium, but I should push it until my patient could not have a convulsion.

It is claimed to be of marked benefit in cases of sea sickness when used in small doses often repeated, and may be used to prevent its occurrence.

This is a remedy to be prescribed if a patient is nervous and feverish. If he is simply nervous without fever or inflammation give pulsatilla. Insomnia is often relieved with gelsemium.

Scanty flow of urine with irritation of the urinary passage calls for gelsemium.

It is a remedy for dysuria from spasmodic urethral stricture; it also acts promptly in retention of urine in hysterical women, and in pelvic diseases, such as ovaritis, metritis, and salpingitis.

I have used it with marked benefit in rigid os uteri, with thin, unyielding edges and dryness of the parts in labor; in fact it relaxes all sphincters and facilitates the labor, but for these purposes full doses should be given. I also use it for after-pains. The dose of specific gelsemium is from one tenth to ten drops.

If we should get marked symptoms from an overdose, use heat, electricity, alcoholic stimulants, artificial respiration, and atrophine or strychnine hypodermically as an antidote; strong coffee may also be used.

In King's Dispensatory as revised by Felter and Lloyd, are given the specific indications and uses as follows:

"Gelsemium is indicated by bright eyes, contracted pupils, flushed face, great heat, and restlessness; mental irritability, insomnia, with excitation, pain over the whole head, dysuria, with scanty secretion of urine; irritation of the urinary tract; pinched, contracted tissues; thin dry, unyielding os uteri, with dry vaginal walls; arterial throbbing and exalted sensibility, chilly sensations upon motion; hyperemia and convulsions."

PLANTAGO MAJOR — DOUBLE SULPHIDE

BY ELI G. JONES, M.D., BURLINGTON, N. J.

THE plantago major is indicated in lacerated or incised wounds or injuries, especially when attended with painful swelling, with symptoms of erysipelas or blood poisoning — apply a lotion of a tablespoonful of the tincture to a cup of water. It is also indicated in toothache, tooth feels longer than the others, shooting pains in left ear, stabbing pains along the superior branch of trifacial nerves. Wet cotton with tincture, fill cavity of decayed tooth with it, rub the swollen gums with the tincture.

Put twenty drops of specific medicine plantago in half a glass of water, teaspoonful once in an hour.

In enuresis of children that secrete larger amount of urine than natural, of pale watery urine, there is a laxity of the sphincter vesicæ. The plantain leaves was our grandmother's remedy for inflammation, the bruised leaves bound on to the inflamed part to draw out the inflammation. Many of our writers on materia medica will tell you of a long list of diseases that a remedy is said to be "good for," but what I want to know most of all is the *indications* for a remedy and what it will do. The "Double Sulphide" (formula given in "New Field," by Dr. W. H. Burgess, Chattanooga, Tenn.) is a remedy I have used daily for five years. It is a fine antiseptic, none better. In many cases of chronic disease of the eye, the tongue shows a septic condition, and so we begin the "house cleaning" with the double sulphide. When a patient shows a tongue with red papilla prominent, it means invasion of some disease and is an indication for double sulphide. I find sores heal up faster on the body with double sulphide than without it. The "New Field," by Dr. Burgess, is a book every doctor should study early and often; no matter what his medical politics may be, it will make a better physician of him. His "ideas on natural diagnosis" have been worth thousands of dollars to me. A doctor who really wants to "do things" in his profession must be ready for any therapeutic fact, no matter from what source it may come. In this way he will add to his stock of knowledge; that means just so much added to his working capital. There is a remedy *somewhere* for *every* disease, and it is our business to find it.

Sometime, when all life's lessons have been learned,
And the sun and stars forevermore have set,
The things which our weak judgment here has spurned,
The things o'er which we grieved with lashes wet,
Will flash before us out of life's dark night,
As stars shine most in deeper tints of blue;
And we shall know how all God's plans were right,
And how what seemed reproof was love most true.

M. R. SMITH.

Some day He will tell you why He has tried you, and let you look back upon your life story and see the golden thread of His fatherly love and care shining over and around it all, not as it is now, winding in and out, and only seen by glimpses.

F. R. HAVERGAL.

PHYSICAL THERAPY

FIRST STEPS IN MEDICAL ELECTRICITY

BY HERBERT MCINTOSH, A.M., M.D., BOSTON, MASS.

PART II — CHAPTER IV

DISEASES OF THE RECTUM

HEMORRHOIDS.— According to their location these are of two kinds, external and internal. The former are thrombotic or cutaneous, the latter capillary or venous.

Thrombotic hemorrhoids are so quickly and satisfactorily cured by the knife that it seems unnecessary to devise a treatment by electricity. They may be opened like an abscess and the clot turned out. When there is much redundancy of tissue, fine sutures of silk may be carried through the base of the tumor, and after incision the edges may be trimmed down and drawn together. In order to render this procedure painless, a drop of pure carbolic acid may be placed upon the cutaneous margin, and a hypodermic needle introduced at this point and a ten per cent solution of cocaine slowly and gradually injected.

Galvano Caутery.— Instead of the knife the galvano cautery brought to a dull red heat may be employed.

Cutaneous Hemorrhoids, or tags, may be removed by the knife after anesthetizing, or they may be removed by galvanic puncture, one or more rounded or flat needles attached to the negative pole being introduced near their union with the body and successively carried through until a linear area of tissue destruction is produced. The nutritive connection being destroyed the tag soon drops off. (Fig. 1.)



Figure 1

Capillary Hemorrhoids.— These do not project into the lumen of the bowel to any considerable distance. They are therefore difficult to locate. They are of the nature of a nevus or telangiectasis. They are characterized by a marked tendency to hemorrhage, patients suffering frequently from anemia without being aware of the cause of their diminished strength. These are readily cured by the application of the galvano-cautery. This converts the capillary network into an eschar, and quickly effects a cure.

For this purpose it may be necessary to employ a rectal speculum with a slide which upon withdrawal reveals the location of the diseased area.

Arc Light.—Cleaves (*Advanced Therapeutics*, January, 1908) reports great improvement in a case of hemorrhoids, attended with profuse hemorrhage, from the application of the marine search light (twenty-five amperes) to abdominal, precordial, spinal, and particularly lumbar-sacral areas. Within two weeks the hemorrhage was controlled.

Venous Hemorrhoids.—It is rarely necessary to treat these tumors unless they prolapse. Where they do not prolapse they are usually not painful. In this case they can be recognized by means of a slide speculum, and thus treated. Where they are sufficiently swollen they can be made to prolapse by straining, as in defecation. They are thus brought to view, and are easily treated by electrolysis. They may be anesthetized as above described by a four per cent solution of cocaine. When properly prepared one or more round sewing needles mounted upon a handle are attached to the negative pole of a constant current battery, the positive pole being connected with a large pad upon the abdomen. The needles being introduced into the tumor, its surface becomes white, and minute hydrogen bubbles soon make their appearance. The needles are then withdrawn, and if necessary reintroduced. The tumors shrivel up in a few days and disappear painlessly. This is undoubtedly an efficacious and satisfactory method and does not require the patient to absent himself from his work.

When divulsion is desired, as where the hemorrhoids do not present themselves sufficiently for ready treatment, without the use of a speculum, the parts may be rendered anesthetic by means of phoresis. A conical-shaped copper electrode is covered with cotton (Fig. 2), moistened by a four per cent cocaine solution, attached to the positive pole of the constant current battery, and pushed into the rectum. The negative electrode is a large pad placed upon the abdomen. A current of thirty milliamperes may be passed for about ten minutes. A certain amount of divulsion may thus be painlessly accomplished, and a very much more complete anesthesia obtained than by hypodermic injection.



Figure 2

There are certain alternative methods which may be employed, which, however, are inferior to those already described.

Metallic Phoresis.—For the treatment of venous hemorrhoids a copper electrode (Fig. 1) is carefully covered with chamois skin and moistened with a ten per cent solution of ichthyol in glycerine. This is attached to the positive pole of the constant current battery, and a current of from ten to fifteen milliamperes is allowed to flow for ten minutes. The negative pole is a large pad placed upon the abdomen. The treatment is repeated every second day. Here the astringent effect of the positive pole manifests itself in a rapid reduction of the size of the tumors.

Galvano Caution.—The prolapsed tumors may be quickly touched with the dull red blade of the galvano cautery. They are then anointed with vaseline or other lubricant, and carefully returned to the bowel. A succession of such treatments at intervals of a week will cause the disappearance of these tumors.

High Frequency.—Where the congestion has not resulted in an alteration of the tissues, and is therefore comparatively recent, a glass vacuum tube (Fig. 3), carrying a high frequency current, introduced into

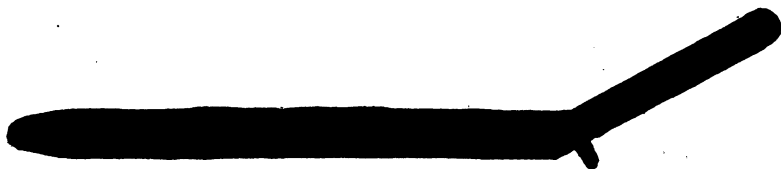


Figure 3

the rectum, is capable of restoring muscular tone to the weakened rectal walls and dissipating the hemorrhoidal swellings.

Bokenham reports very favorable results in a large number of cases treated by high frequency currents.

FISTULA. Metallic Phoresis.—This painful disease readily lends itself to electrical treatment. For this purpose a long copper probe is introduced into the fistula (Fig. 4) and attached to the positive pole of the



Figure 4

constant current battery, a large pad being attached to the negative pole and placed upon the abdomen. A current of from five to twenty-five milliamperes may be passed, depending upon the size of the channel, and may be continued from five to ten minutes. The antiseptic copper salt is deposited in the tissues, the pyogenic membrane destroyed, and the healing process started. To the objection that branches are not thus reached, it is answered that the deposit of cupric salts is not limited to the fistula through which the electrode passes, but where the current is sufficiently strong involves contiguous territory. In this respect also

it is superior to the surgical treatment of this painful disease, since if an associated tract is not discovered the cure may nevertheless be effected. Three or four days should elapse between treatments, and a smaller wire used at each visit. Local anesthesia should be employed, and where this is sufficiently profound, larger currents may be employed and the fistulous tract cured by one treatment.

RECTAL STRICTURE.— The same method applied so successfully to the cure of urethral stricture may be employed here. For this purpose sets of electrodes of copper, brass, silver, or nickel plate are provided, of different sizes, in length from one fourth inch to one and one fourth inches, and having a circumference from one and one eighth to three inches. These are mounted upon an insulated staff which may be flexible or stiff. Beginning with the smallest size which resists passage, the electrode is connected with the negative pole, and a current of from five to twenty milliamperes is employed. The weakest current capable of performing the work should be employed. The treatment may last from five to fifteen minutes. For other details the student may consult the paragraph on urethral stricture, the technique in the two operations being similar.

PROLAPSE OF THE RECTUM.— For the management of this condition, especially where it is complete, resort must frequently be made to surgery. Where it is partial, the bowel must first be replaced and measures employed to hold it in position. If these are not successful, the mucous membrane may be anesthetized by four per cent cocaine, and the dull red cautery passed longitudinally over the protruded bowel, making four linear applications at equidistant points. The effect is to bind the mucous membrane to the underlying tissues.

Cupric Phoresis.— Frequently the use of the copper electrode (Fig. 2), according to the technique described under the treatment of hemorrhoids, will accomplish the same results.

High Frequency.— In recent cases the high frequency vacuum electrode may be successfully employed. (Fig. 3.)

PRURITUS ANI. X-ray.— This frequently has its origin in an ulcer or fissure, which discharges an irritating secretion upon the tissues around the anus. These become rough and thickened, and the seat of intolerable itching. The obvious preliminary treatment is to cure any condition, like ulcer, fissure, hemorrhoids, prolapse, stricture, or proctitis, which may give rise to the irritating discharge. When this has been corrected the X-ray is to be employed, the results of which have been highly successful here, as they are elsewhere in pruritic conditions. A soft tube should be selected, and treatments taking ten minutes three times a week should be given, after the operator has tested the tolerance of the tissues to X-ray exposure.

Radium should be employed if the case continues refractory. This treatment secures rapid and brilliant results.

High frequency vacuum discharges are useful, more particularly in cases where the tissues have not undergone thickening.

The static brush discharge produces a somewhat similar result.

FISSURE OR ULCER.—This painful disorder is readily cured by the application of the dull red cautery. A few drops of a four per cent solution of cocaine must first be injected, or brushed over the surface. Where there is much spasm of the sphincter, the cautery may be heated to a white heat, and the edge of the knife carried a slight distance into the tissues. The results are highly satisfactory. The bowels should be confined for a few days, after which a laxative, like castor oil, should be given. The patient should be kept in bed for a few days, and the wound surgically dressed. If, however, the fissure has demanded only a superficial application of the cautery, the patient will not need to stay away from business.

Whenever an ulcer is accessible in the rectum it may be similarly treated. Suitable medicinal and hygienic treatment should be associated with the use of the cautery whenever demanded.

High Frequency Vacuum Electrode.—These are sometimes useful, and may be employed when the cautery is objected to. Undoubtedly the dilatation secured by the introduction of the tube assists in the cure (Fig. 3).

Non-Malignant Growths of the Rectum.—These are usually called polypi, but they may include any of the following varieties: adenomata, fibromata, papillomata, teratomata, lipomata, cystomata, enchondromata, and angiomata. They may be removed by the use of the hot wire snare, heated to a dull red heat. Hemorrhage is thus avoided and the stump, of the wound seared.

(To be continued)

FIRST STEPS IN MEDICAL ELECTRICITY

BY HERBERT MCINTOSH, A.M., M.D., BOSTON, MASS.

We are very much pleased to be able to announce to our readers that the work with the above title is nearing completion. The portions of the book which have been printed in the JOURNAL OF THERAPEUTICS AND DIETETICS, since a year ago last April, have aroused considerable interest among all those who are in any way interested in the application of electricity to the cure of disease.

The publishers feel that they are safe in stating that the book will be ready for delivery during the coming October. They are also very sure that there has been nothing yet published that will compare with this work along practical lines.

We expect to publish the TABLE OF CONTENTS in our next issue.

DEPARTMENT OF DIETETICS

COMPARATIVE COST AND VALUE OF FOODS

Cost and Nutrient Content of Foods.—The market price and the nutritive value of foods are often at variance, as those which cost the most frequently contain the least nutrients. It is difficult to make absolute comparisons as to the nutritive value of foods at different prices, because they differ, not only in the amounts, but also in the kinds of nutrients. While it is not possible to express definitely the value of one food in terms of another, approximate comparisons may be made as to the amounts of nutrients that can be secured for a given sum of money when foods are at different prices, and tables have been prepared making such comparisons.

Nutrients Procurable for a Given Sum.—To ascertain the nutrients procurable for a given sum, first determine the amount in pounds that can be obtained, say, for ten cents, and then multiply by the percentages of fat, protein, carbohydrates, and calories in the food. The results are the amounts, in pounds, of nutrients procurable for that sum of money. For example: If milk is five cents per quart, two quarts or approximately four pounds can be procured for 10 cents. If the milk contain fat 4 per cent, protein 3.3 per cent, carbohydrates 5 per cent, and fuel value 310 calories per pound, multiplying each of these by 4 gives the nutrients and fuel value in four pounds, or 10 cents' worth of milk as follows:

Protein	0.13 lb.
Fat	0.16 lb.
Carbohydrates	0.2 lb.
Calories	1,240

If it is desired to compare milk at 5 cents per quart with round steak at 15 cents per pound, 10 cents will procure 0.66 or two thirds of a pound of round steak, containing on an average (edible portion) 19 per cent protein, 12.8 per cent fat, and yielding 890 calories per pound. If 10 per cent is refuse, there is edible about 0.6 of a pound. The amounts of nutrients in the 0.6 of a pound of steak, edible portion, or 0.66 pound as purchased would be:

Protein	0.11 lb.
Fat	0.08 lb.
Calories	534

It is to be observed that from the 10 cents' worth of milk a little more protein, 0.08 of a pound more fat, and nearly two and one half times as many calories can be secured as from the 10 cents' worth of meat. This

is due to the carbohydrates and the larger amount of fat which the milk contains. At these prices milk should be used liberally in the dietary, as it furnishes more of all the nutrients than does meat. It would not be advisable to exclude meat entirely from the rations, but milk at 5 cents per quart is cheaper food than meat at 15 cents per pound. In making comparisons, preference cannot always be given to one food because of its containing more of any particular nutrient, for often there are other factors that influence the value.

Comparing Foods as to Nutritive Value. In general, preference should be given to foods which supply the most protein, provided the differences between the carbohydrates and fats are not large. When the protein content of two foods is nearly the same, but the fats and carbohydrates differ materially, the preference may safely be given to the food which supplies the larger amount of total nutrients. A pound of protein in a ration is more valuable than a pound of either fat or carbohydrates, although it is not possible to establish an absolute scale as to the comparative value of these nutrients, because they serve different functional purposes in the body. It is sometimes necessary to use small amounts of foods rich in protein in order to secure a balanced ration; excessive use of protein, however, is not economical, as that which is not needed for functional purposes is converted into heat and energy which could be supplied as well by the carbohydrates, and they are less expensive nutrients.

It may be stated that, ordinarily, for the same amount of money the most nutrients can be obtained in the form of milk, cheese, sugar, and beans, corn meal, wheat flour, oatmeal, and cereals in bulk. While meats supply protein liberally, they fail to furnish carbohydrates as the vegetables. As will be shown later, unnecessarily expensive foods are often used, resulting either in lack of nutrients or unbalanced rations.

Cheap and Expensive Foods.— Among the more expensive items of a ration are meats, butter, and canned fruits. The difference in composition and nutritive value between various cuts of meat is small, being largely physical, and affecting taste and flavor rather than nutritive value. Expensive cuts of meats, high-priced breakfast cereals, tropical fruits, and foods which impart special flavors, add little in the way of nutritive value to the ration, but greatly enhance the cost of living. Ordinarily the cheapest foods are corn meal, wheat flour, and bread, milk, beans, cheese, sugar, and potatoes. The amount of animal and vegetable foods to combine with these to form a balanced ration may be governed largely by personal preference or cost, as there is little difference in nutritive value. The selection of foods on the basis of cost and nutritive value is shown in the above example.

Food Notions.— Many erroneous ideas exist as to the nutritive value

of foods, and often wholesome and valuable foods are discriminated against because of prejudice. Skim milk is usually regarded as containing little if any nourishing material, when in reality it has a high protein content, and can be added to other foods to increase their nutritive value. The less expensive cuts of meat contain more total nutrients than many of the more expensive ones. Beef extracts have been erroneously said to contain more nutrients than beef, and mushrooms to be the equal in value of beefsteak; chemical analysis fails to confirm either statement. The banana also has been over estimated as to food value, and while it contains more nutrients than many fruits, it is not the equal of cereals, as has been claimed. Cocoa, although a valuable beverage, adds but little to a ration, unless it is made with milk. The value of a food should be based upon its composition as determined by chemical analysis, its digestibility as founded upon digestion experiments, and its palatability and mechanical structure. Food notions have, in instances, been the cause of banishing from the dietary wholesome and nutritious foods, of greatly increasing the cost of living, as well as promulgating incorrect ideas in regard to foods, so that individuals and in some cases entire families have suffered from improper or insufficient food.

Dietary of Two Families Compared.—A dietary study often reveals ways in which it is possible to improve the ration in kinds and amounts of food, and sometimes at less expense. The following dietaries of two families for the same period show that one family expends over twice as much in the purchase of foods as the other family, and yet the one whose food costs the less actually secures the larger amount of nutritive material and is better fed than the family where more is expended for food.

FOOD CONSUMED, ONE WEEK

FAMILY No. 1		FAMILY No. 2	
20 loaves of bread	\$1.00	15 lb. flour, bread, home made (skim milk used)	\$0.45
10 to 12 lb. loin steak or meat of similar cost	2.00	Yeast, shortening and skim milk ..	0.10
20 to 25 lb. rib roast, or similar meat	4.40	10 lb. steak (round, Hamburger, and some loin)	1.50
4 lb. high-priced cereal breakfast food, 20 cts.....	.80	10 lb. other meats, boiling pieces, rump roast, etc.	1.00
Cake and pastry purchased	3.00	5 lb. cheese, 16 ct.	0.80
8 lb. butter, 30 cts.....	2.40	5 lb. oatmeal (bulk)	0.15
Tea, coffee, spices, etc.	0.75	5 lb. beans	0.25
Mushrooms	0.75	Home-made cake and pastry	1.00
Celery	1.00	6 lb. butter, 30 ct.	1.80
Oranges	2.00	3 lb. home-made shortening	0.25
Potatoes	0.25	Tea, coffee and spices	0.40
Miscellaneous canned goods	2.00	Apples	0.50
Milk	0.50	Prunes	0.25

Miscellaneous foods	2.00	Potatoes	0.25
3 doz. eggs	0.60	Milk	1.00
		Miscellaneous foods	1.00
		3 doz. eggs	0.60
	<hr/>		<hr/>
	\$23.45		\$11.30

The approximate amounts of nutrients in the foods purchased by the two families are given in the following table, from which it will be observed that Family No. 2 obtained a much larger amount of total nutrients and was better fed at considerably less expense than Family No. 1.

NUTRIENTS IN FOOD CONSUMED.—FAMILY No. 1

	Protein	Fat	Carbohydrates
	Lb.	Lb.	Lb.
20 lb. bread	1.98	0.28	11.42
10 lb. loin steak	1.59	1.76	—
20 lb. rib roast	2.68	4.26	—
4 lb. cereals	0.42	0.06	2.75
8 lb. butter	0.04	6.80	—
25 lb. potatoes	0.45	0.03	3.83
20 lb. milk	0.70	0.80	1.00
	<hr/>	<hr/>	<hr/>
	7.86	13.99	19.00

NUTRIENTS IN FOOD CONSUMED —FAMILY No. 2

	Protein	Fat	Carbohydrates
	Lb.	Lb.	Lb.
15 lb. flour	1.89	0.12	11.15
5 lb. skim milk	0.16	0.01	0.26
10 lb. round steak	1.81	1.26	—
10 lb. beef	1.32	2.02	—
5 lb. cheese	1.40	1.75	—
5 lb. oatmeal	0.78	0.36	3.40
6 lb. butter	0.03	5.10	—
3 lb. shortening	—	2.55	—
3 lb. prunes	0.03	—	0.60
25 lb. apples	0.12	—	2.50
25 lb. potatoes	0.45	0.03	3.83
40 lb. milk	1.44	1.60	1.90
5 lb. beans	1.12	—	3.00
	<hr/>	<hr/>	<hr/>
	10.55	14.80	26.64
Difference in nutrients in favor of family No. 2, consuming the cheaper combination of foods	2.69	0.81	7.64

The above is extracted from "Human Foods," by Snyder, published by The Macmillan Company.

THE MEDICAL ROUND TABLE

A TUBERCULOSIS VACCINE

IN *Ellingwood's Therapist* for May, Dr. W. W. Houser calls attention to the fact that butchers seldom have tuberculosis, and suggests the possible theory that as the smallpox vaccine came from the cow, so there might be a tuberculosis preventative in cattle, with which butchers get vaccinated in the constant handling of the carcasses of beeves and the cuts and scratches they get in their work. This theory he considers is favored by the recent work of Spengler with his *Perlsucht Tuberculine* ("P. T. O."), a preparation which is attracting great attention. It is prepared, he tells us, from cattle suffering from pearl disease, which is a true bovine infection. Spengler says, "*Perlsucht* toxine is very slightly toxic for tuberculosis in humans, but curative and *immunizing* effects can be produced by this toxin in a short time without danger. *It is comparable to Jennerian vaccination.*"

In view of the strenuous efforts which are being made to stamp out the great white plague, this theory is a mightily interesting one, and deserves careful study. That it should prove to be true would be no more strange than was Jenner's theory which he got from the suggestions of a milkmaid, and which has practically stamped out of civilized nations one of the greatest plagues of the race. We invite reports, questions, and discussions concerning this theory, in the Medical Round Table.

J. M. F.

THE DEFERVESCENT GRANULE IN PNEUMONIA

EDITOR JOURNAL OF THERAPEUTICS AND DIETETICS:

I am not a faddist, not even an enthusiast, in the use of medicines in my practice, but my use of one of the alkaloidal combinations has been so satisfactory that I am willing to bear public testimony to its value as an aid. I refer to the so-called "defervescent" combination. I have used it several years in pneumonia, and it has been my good fortune not to have lost an uncomplicated case of pneumonia in that time. I have found its chief value in children, and also found that it should be used early and boldly to get the best results. I will give a striking example of its effects in a case where we had a chance to compare it with another case in the same family, treated by the usual methods.

I was called in consultation by a brother physician because he knew I was trying the new line of medication. He had had one child, a boy of

ten years old, that had been sick with pneumonia for a week, and which later went on to effusion, followed by empyema and an operation, with a long sickness. The boy I was called to see was a year younger, was taken almost exactly the same way, in the same room, same lung, and same lobe, with a temperature of 104, pulse 128, and respiration 44, with pain, bronchial breathing, flatness on percussion, rales, and a bloody sputum, in fact nothing lacking in rational and physical signs for a perfect picture of pneumonia. We gave a full strength granule every fifteen minutes for eight times, then every thirty minutes for four times, and then every hour, until the pulse and temperature were below one hundred. In forty-eight hours the pulse, temperature, and respiration were normal, and the boy was about the house in a week.

The above may have been only a coincidence, but if so, it is the kind of a coincidence that a physician enjoys and the parents appreciate.

LEWIS M. PALMER, M.D.,

South Framingham, Mass.

This is a good example of the abortive treatment of disease. My own experience has coincided very closely with that of Dr. Palmer in the treatment of pneumonia by the use of the alkaloids. When they are used "early and boldly," a large proportion of cases can be promptly aborted.

J. M. F.

LYCOPUS VIRGINICA

EDITOR JOURNAL OF THERAPEUTICS AND DIETETICS:

The following is the summarized report of the study made by "The Eclectic League for Drug Research," in drug *lycopus virginica*.

This remedy displays two main activities, that of a sedative to the heart, possibly through its action on the muscle, and as an astringent to the capillary circulation, primarily of the lungs and bronchi, secondarily of the urinary organs and intestine.

It has always been thought of in connection with the disturbed heart action and the passive hemorrhages accompanying pulmonary tuberculosis. This action is vouched for by several of the members of the League and seems reliable. The case showing great debility and nervousness seems to be the one most susceptible to its influence.

Chronic bronchitis is equally well remedied by *lycopus*, when the local debility and passive hemorrhages or thin, sanious discharges are present.

In diabetes its power seems to be questioned. Dr. A. W. Smith cannot recall a case where it even benefited, although he acknowledges that he has not employed it sufficiently to decide as to its value.

Dr. E. D. Jones considers it a reliable drug in certain forms of diabetes mellitus, and far superior to *rhus aromatica*, when there is great thirst, marked emaciation, and the passage of large quantities of clear urine. He employs an infusion of the herb, one ounce to hot water one pint, a tablespoonful four times a day.

Lycopus has been mentioned as a remedy for chronic diarrheas, but the proper case has apparently not been defined. I myself employed it in a case of several years' standing but failed to relieve in a month's time. The same case was later almost completely cured with five-grain doses of magnesium sulphate four times a day.

In various heart lesions it hardly does more than tone up the muscle in cases showing marked muscular relaxation, although it appears to have some direct sedative action.

The dose should be as large as possible without disturbing the stomach, which it will do if given too freely.

W. LEMING, M.D.

WHY IRON

EDITOR OF THE JOURNAL OF THERAPEUTICS AND DIETETICS:

You may be able to cause a patient to swallow your iron, but what are your results? Chemical iron is an agent that is foreign to the system, and the organism failing to digest it expels the drug as rapidly as possible.

Its principal medicinal characteristic is its astringency. As a local styptic I do not think we possess its equal. For internal hemostatic use we have a number of remedies that are far preferable.

When given by the mouth, I believe that not an atom — as such — is added either to the blood or any tissue. This is contrary to the established opinion that has been handed down by the fathers, but will not be regarded so inconoclastic as it would have been a few years ago.

Investigators are making it more plain and clear to those who care to observe — as scientific facilities afford results — that no iron, except the iron of our food — ORGANIC IRON — is absorbed by the organism.

All the inorganic iron you dose your patients with, that is not lodged in some gland creating glanular irritation, can be recovered from his dejecta.

To get iron into an absorbable form has been the first thought of the physiological chemist for ages. Iron assimilation has been the crux of the whole medical past.

Iron as it appears in the food and in iron containing plants — *Rumex Crispus*, for example — cannot be artificially duplicated.

We may have the results of iron in the *blood current*, but it is not assimilated as such; it acts catalytically, not through absorption.

It has been assumed that chalybeates find their way into the blood current and then incorporate with the iron elements, so called, of the red corpuscles.

Medical fatuity, which is responsible for so many therapy errors, fathers this assumption, made in the face of the fact that iron, as such, lacks results from the system's inability to take it up.

Those who prescribe iron because of the handed down theory do not reason from facts at all. Why, then, do they give it? Simply because it is the fashion.

Is it not time for us to *seriously* study these questions?

Suppose some right-minded, long-headed purveyor should produce a rich organic iron — Nature's food or plant iron content, easily secured by systematic care of plant cultivation. What, then, would be the excuse for the manufacturers of chemical iron? WHY IRON?

A. WALDO FORBUSH, M.D.
Somerville, Mass.

ELECTRON THEORY

Will you tell me what is meant by the electron theory?

During the last few years the study of the kathode rays of the x-ray tube, together with the rays thrown off from radium, have tended to overthrow the proposition of John Dalton, that the unit of matter is the indivisible atom, and exhaustive study has made it probable that the ultimate unit is a still smaller body to which the name electron has been given.

Whether this ultimate "somewhat" is a particle or corpuscle of matter, or an electric charge only, has not been determined, though opinions incline strongly to the conclusion that it is only a charge. These charges have been found to be from seven hundred to one thousand in a hydrogen atom.

To ascertain the number in any other atom it is necessary only to multiply the atomic weight by the number of electrons in hydrogen. Thus for radium the number of electrons would be 1,000 times 225, or 225,000. Thus the fundamental differences in the physical properties of the elements are due to the difference in the number of electrons contained in the atoms constituting them. We thus arrive at a certain unity in the conception of matter to which the scientific mind is strongly impelled.

The above is not, in any sense, a complete answer to your question, but simply serves as an introduction to a fuller treatment of the subject.

CONCERNING VERBENA HASTATA

EDITOR JOURNAL OF THERAPEUTICS AND DIETETICS:

Could the fluid extract of verbena hastata be used hypodermically? If so, I would like to give it a trial in a variety of conditions.

JOHN ALBERT BURNETT, M.D.,
Little Rock, Ark.

Neither the fluid extract of verbena, nor, as a rule, any other fluid extract can safely be used hypodermically. Too much dirt tells the story. As a rule, only the alkaloids and other active principles, and not all of these by any means, are fitted for hypodermic use. In order that a drug may be used to advantage hypodermically, it should be in a state of perfect solution, so that it will readily be taken up by the tissues. Also it must not be of such a nature as to cause great irritation, thereby producing congestion, inflammation, and perhaps suppuration of the tissues. The fluid extract of verbena is objectionable in both these respects. Besides, it seems to me probable that all the good effects of this drug can be secured by the internal method of administration. At any rate, do not try to use it hypodermically until a clean and concentrated preparation has been specially made for the purpose.

J. M. F.

BOOK REVIEWS

Diseases of the Nervous System. By JOHN EASTMAN WILSON, A.B., M.D., Professor of Diseases of the Nervous System, New York Homeopathic Medical College and Flower Hospital, and in the New York Medical College and Hospital for Women, Neurologist to the Flower Hospital, Women's Hospital, Hahnemann Hospital, Laura Franklin Free Hospital for Children, St. Mary's Hospital, Passaic, N. J., and Consulting Neurologist to the State Hospital, Middletown, N. Y. The book is an octavo and contains 499 pages. Price in cloth, \$3.50. Price in half morocco, \$4.50. Published by Boericke & Runyon, Homeopathic Publishers and Chemists, New York and Philadelphia.

This work is a compendium of the diseases of the nervous system, and is based upon the author's conception of the needs of the medical student and the general practitioner of medicine. It presents in reasonable detail the accepted opinions of the etiology, pathology, symptoms, and treatment of these diseases, and in addition, such modifications as are suggested by the experience of the author, or are of such recent date that they are as yet to be found in current literature only. The anatomy and pathology of the nervous structure is fully illustrated, largely by original drawings. The treatment is in all cases full and complete. Many homeopathic remedies

have been given the prominence which experience has proven was their due and the frequent necessity for adjuvants and palliatives pointed out. The adaptation of the various physical modalities to the amelioration of this class of deviations from the normal or healthy standard has been emphasized. The work cannot help proving its worth to any fair-minded seeker after help in his chosen profession.

The Elements of Hygiene (for schools). Compiled by Isabel McIsaac, late Superintendent of the Illinois Training School for Nurses; Collaborator of the "American Journal of Nursing"; author of "Primary Nursing Technique," and "Hygiene for Nurses." 16mo, pp. 172. Cloth. Price \$.60 net. Published by The Macmillan Company, 66 Fifth Avenue, New York City.

While this is a text book for school use, yet there is much information contained between its covers that will prove helpful to the medical man who is not thoroughly conversant with the more modern thought on hygiene.

A Manual of Practical Obstetrics. By FREDERICK W. HAMLIN, M.D. Professor of Obstetrics in New York Homeopathic Medical College and Hospital; Visiting Obstetrician to Hahnemann Hospital and Flower Hospital. 16mo. Bound in flexible leather, 520 pages. Price \$2.50 net. Published by Boericke & Runyon, Homeopathic Publishers and Chemists, New York and Philadelphia.

This is a practical book for practical men from which all theory has been omitted. The essential facts of Obstetrics are presented in a clear, concise, readable manner. The book is designed for ready reference by the busy practitioner and its advocated method of treatment is that prescribed by the Homeopathic School. The symptoms calling for the various remedies in the practise of the art of obstetrics are described in an unusually clear and concise manner, and must of necessity prove helpful to the one who consults its pages for help. Its compactness is one of its chief merits.

Quacks and Grafters, by EX-OSTEOPATH. Being an exposé of the state of therapeutics at the present time, with some reasons why such grafters flourish, and suggestions to remedy the deplorable muddle.

Published by the Cincinnati Medical Book Company, Cincinnati, Ohio. This book contains much inside information as to the various forms of quackery. The force of the exposure is lessened by the anonymous character of the writer.

J. M. F.

The Desk Book of Facts, for Physicians and Pharmacists, by RALPH WALSH, M.D., Washington, D. C., 1909. Published by the same. Contains lists of the newer remedies, important official remedies, non-official remedies, poisons and their antidotes, incompatibles, antagonists, and many valuable tables.

J. M. F.

THERAPEUTIC NUGGETS

SOME REMEDIES ACTING ON THE LIVER

Spec. Med. Chelidonium.— The patient that needs this remedy will complain of pain in the right shoulder and along the dorsal region of the spine. The hypochondriac region will feel full to the touch, a dull leaden coating will be found on the tongue, the complexion is sallow, and there is a greenish-yellow tinge to the skin. *Dose:* one to three drachms should be added to four ounces of water and the patient directed to take a teaspoonful every one to three hours.

Spec. Med. Juglands.— This agent will be found very serviceable in chronic skin affections, especially if they are accompanied by torpidity of the liver and constipated bowels. *Dose:* One half to one drachm added to four ounces of water, and given in drachm doses every one or two hours.

Spec. Med. Podophyllum.— In examination of the case that needs this agent you will find a full tongue with a yellowish-brown coating, a general fullness of all the tissues and veins, great torpidity of the liver, and almost constantly a heavy, dull headache. The patient will complain of much dizziness and a constant feeling of languor. *Dose:* One to three drachms should be added to four ounces of water and drachm doses be administered every one, two, or three hours.

Sodium Phosphate.— This salt will prove valuable when you have a case of hepatic colic that is complicated with biliary catarrh, and there is a sallow skin, a pallid tongue that is covered with a coating of a yellowish color, eructations that are acid, and stools that are light colored and float on the water. *Dose:* Five to twenty grains of this salt may be given from three to six times a day until the patient's condition becomes normal.

Spec. Med. Leptandra.— Your patient comes to you and complains of a dull, heavy headache, confined to the frontal region, of a dull pain in the region of the liver. You observe a tongue that is broad and thick and heavily covered with a white coat, a sluggish circulation, and a sallow skin. The patient says there is a bitter taste constantly in the mouth and frequently will complain of chills that point to malaria. *Dose:* One to three drachms added to four ounces of water and a teaspoonful given every one to three hours, according as the case is more or less chronic.

Spec. Med. Dioscorea.— This is the remedy, *par excellence*, for bilious colic, especially if the pains are of a sharp, tearing nature. *Dose:* One half drachm added to four ounces of water and teaspoonful doses given every fifteen minutes will soon relieve your patient. One or two drops of SPEC. MED. COLOCYNTH added to your four ounce mixture will add to its efficacy.

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EDITORIALS

AN EMERGENCY CASE OF TWELVE REMEDIES

COMMENCING with the next issue of the JOURNAL OF THERAPEUTICS AND DIETETICS, it is my intention to submit for the consideration of its readers a description of twelve remedies which, in my opinion, would make an ideal combination for a twelve remedy emergency case.

One of these remedies will be described each month, and that for the succeeding issue will be named in the current number. *Nux Vomica* will be the topic for September, and the various agents will be named in the order of their usefulness from my standpoint.

As my practice has been almost entirely conducted with the aid of specific medicines, it is but natural that this class of remedies will be used to fill up the case of my selection.

It is a practice of many physicians — and a very excellent one too — to carry such a case with them constantly. This series of articles

are to be written with the idea of selecting a list of agents that will fill the wants most completely of an emergency practice. To this end it is desired that a large number of our readers will submit similar combinations in order that the most valuable emergency remedies may be determined.

As every physician in active practice will vary in his ideas, it is desirable that the widest latitude should be given in the selection; hence all forms of drug agents may be chosen in accord with the inclinations and predilections of the selector.

These lists will be published in subsequent issues of the JOURNAL and will be found in the "Medical Round Table." It is hoped that the project may awaken a widespread interest among our readers, and be the means of accomplishing much good along the lines of drug therapy. My own case will consist of twelve three drachm vials, but each one can choose their own size according to their desires.

In writing up these selections each writer is asked to limit the description of their choice to five hundred words.

Who will be the first to submit their favorite twelve?

OUR NEW BOOK ON MEDICAL ELECTRICITY

We desire to call the special attention of every recipient of this issue to the Table of Contents of a "Practical Handbook of Medical Electricity" which is to be found on page 339. The work will contain from three to four hundred pages and will be eminently practical and useful to every user of electricity in the practice of medicine. It will be profusely illustrated, and many of these illustrations have been drawn by the author to more thoroughly elucidate the text and therefore make the book more valuable to whoever consults its pages for information.

The chapters on skiagraphy are especially rich in illustrations, many of which have also been taken by the author to enrich their contents and bring out more prominently the value of X-ray pictures in making a correct diagnosis of puzzling conditions.

We have had prepared a prospectus of this work which will give not only the titles of the chapters but also all their subheads; in addition to this, portions of the work will be printed so that a good idea of the scope of the book may be gleaned from its perusal. This prospectus will be printed on the same grade of paper as that to be employed in the make-up of the book, which will be substantially bound in cloth.

To any person interested we will mail a copy of this prospectus upon the reception of their address.

PESSARIES, ARE THEY, OR ARE THEY NOT USEFUL

Any one who is familiar with the text-books on " Diseases of Women " of twenty years ago will doubtless remember the amount of space that was devoted to the description of hard rubber pessaries of different patterns for the cure of displacements of the uterus.

The authors of that day endeavored to prove that, if the pessary was properly fitted and adapted, the results would be entirely satisfactory; that all the mischief was caused by the ill fitting and wrongly proportioned instruments. To-day it would be hard to convince the practical gynecologist that the hard rubber pessary was not productive of evil results.

Whoever has the anatomy of the female pelvis well in hand will remember that the normal uterus is a body which is hung, as it were, in space, and is constantly changing its position, not only by the movements caused by respiration but also by the difference in the contents of adjacent organs. The normal uterus is held in position primarily by the proper adjustment of the muscular tissue of the surrounding parts. If these muscular fibers, from any cause, lose their tonicity, then the uterus loses its support and as a natural consequence, becomes more or less displaced.

As the primary cause lies in the enfeebled muscular tissue, the attempts to cure must be made along the line of restoring these tissues to their normal condition. The use of the pessary must be confined to the proper support of the uterus, and at the same time allow the movements that took place before the difficulty was experienced.

Common sense tells us that any rigid material which holds the uterus in one fixed position will not be an aid to the restoration of the normal condition of the parts.

For many years I have made use of an air pessary which could be dilated at will to any convenient size after introduction into the vagina and the air withdrawn before its removal. With the use of this instrument proper measures were advised that would increase the tonicity of the muscles which held the uterus in place. This combination has served me admirably in many instances where the hard rubber pessary would have resulted in the formation of ulcers and untold misery. The only fault I had to find with the inflating pessary was the frequency with which it had to be replaced by a new instrument.

Recently my attention has been called to an instrument designed by Dr. Baird, and placed on the market by Huston Brothers, of Chicago, Ill., that obviates this difficulty.

A pessary of this kind may be used to advantage and without the fear that it will cause a more severe trouble than it was intended to remedy. Furthermore, if it is used with the proper physical therapy modalities

and drugs, *if needed*, a pessary of this kind will certainly prove a valuable adjunct in the relief of the misery that arises from a misplaced uterus.

Physicians who have not used this method should familiarize themselves with it at once and so be in a position to give the best aid possible to their unfortunate patients when they apply to them for relief.

ALCOHOL AS A MEDICINE

ON few subjects has there been as great a change in professional opinion and practice during the past twenty-five years as on that which relates to the medicinal uses of alcohol.

If we go back a quarter of a century we shall find one theory as to the action of alcohol, and one practice as to its use firmly intrenched with both the profession and the laity.

The theory was that the action of alcohol was that of a stimulant, and this was the almost universally received opinion of all classes, handed down from hoary antiquity, and accepted without reserve for many centuries. So thoroughly had this idea become ingrained in our habits of speech and even in our literature, that the term "stimulant" had come to be used as a practical synonym for alcohol, and to speak of administering stimulants to a patient signified beyond peradventure the giving of some form of alcoholic beverage.

The practice was the legitimate outcome of the theory, and consisted in the well-nigh universal medicinal use of alcohol. Since all forms of disease result in more or less depression, what could be more reasonable than its treatment by stimulation — especially when the stimulant employed was easily accessible, almost universally acceptable, and produced apparently favorable results in a large proportion of cases. As a matter of fact, it was used far and away beyond the bounds even of this optimistic theory as to its effects. It is hardly too much to say that it was administered in all forms of disease and in every condition of health. It was used to strengthen the weak and the weary, and to soothe and comfort the mentally afflicted and the physically distressed; to increase the appetite and promote digestion, as well as to take the place of food and relieve the pangs of hunger. It was taken in the winter to ameliorate the bitter cold, and in the summer to protect from the burning heat. It was relied upon to relieve pain, to assuage grief, to avert melancholia, to prevent heart failure, to bring about reaction in shock, to bridge over the crisis in fevers, and for a thousand other diverse uses — and always and everywhere on the theory that its action was that of a stimulant.

Twenty-five years have passed, and the great body of medical men everywhere — including the scientific physician of the day, the alert, up to date old man, and the young fellow just out of college — are agreed that alcohol has none of the properties of a stimulant, but is always and everywhere the exact opposite of this, a paralyzant pure and simple. The only instance in which it shows properties even slightly resembling those of stimulation is in its primary action on the heart, and this has been shown conclusively to be the result of vaso-motor paralysis, the action of the heart being increased by diminishing the resistance to its action. Benjamin Ward Richardson, in his classic work on the Diseases of Modern Life, was one of the first to show that the entire physiological action of alcohol is that of paralysis instead of stimulation, and this he did by considering its effects in each of its four stages substantially as follows:

First stage: Paralysis of the vaso-motor nerves, with resulting dilatation of the capillaries, increased flow of blood to the surface, and augmented action of the heart. This is the so-called primary stimulant action on the heart.

Second stage: Paralysis of the power of muscular co-ordination and self-control, usually beginning in the extensors. The individual often betrays the effects of the drug in this stage by the care which he exercises in putting down his feet, and the slight difficulty which he experiences in making a straight course for them. He has not yet progressed so far but that he desires to retain the appearance of self-control, though he has lost it in reality.

Third stage: Paralysis of the higher centers of thought and will, leaving the man at the mercy of his emotional nature, which is no longer restrained by prudential considerations. The speech becomes affected, the conversation wild and rambling, and the individual may become dangerous or maudlin or ridiculous, according to the bent of his lower impulses.

Fourth stage: Paralysis of the organic centers of motion and sensation, deepening into complete insensibility. The individual is now dead drunk. If the process of alcoholization continues, even the centers of respiration and circulation, which hold out longer than any others, become paralyzed, and death ensues.

These views have now come to be in substance generally accepted. An illustration of the completeness of the change in professional sentiment was brought to my notice a few months ago, when, taking advantage of the presence of a member of the consulting staff of the hospital in which I was at the time serving, I asked the consultant, who was a man of wide experience and excellent reputation, to see with me a case of what seemed to me the last stages of an incurable disease. Looking the patient over carefully, while not hazarding a favorable prognosis, he yet "thought it

worth while to try the effect of stimulants." Inquiring more definitely, I found that by the term *stimulants*, he referred to strychnine and digitalis, and had no thought of any form of alcohol.

Along with this change in theory has come a corresponding but no less remarkable change in practice. Just what the proportionate use of the different preparations of alcohol in medical prescriptions is to-day as compared with twenty-five years ago, is of course extremely difficult to determine. But a consultation with various pharmacists leads me to believe that it is not more than one fourth as great.

In 1899 a series of questions relating to the treatment of pneumonia was sent out to forty physicians who were members of a local medical society, one of them relating to their use of alcohol. Of the thirty persons who sent replies, six used it as a routine measure in all or nearly all cases. Twelve used it in certain stages of the disease and for certain symptoms. Eleven used it but seldom. One never used it.

Not more than six or eight years later the members of the same local society were discussing informally the treatment of pneumonia, and one by one they named the measures most commonly employed by them, giving especial prominence to the drug treatment. When about two thirds had expressed themselves, one young man, a newcomer in the society, called attention to what seemed to him the remarkable fact that no one had as yet mentioned alcohol. Certainly this would not have been possible even a few years earlier.

J. M. F.

WHAT IS "SUCCESS"?

NOR long ago a firm of Boston publishers offered a substantial prize for the best definition of the word "success." Many attempts were made to win the prize, but it was more difficult than, at first thought, supposed. Almost every contributor wrote from his or her own point of view, and of course the treatment was as varied as the individual was narrow. The prize was finally awarded to a lady, a resident of Lincoln, Nebraska, who wrote the following classic definition:

"He has achieved success who has lived well, laughed often, and loved much; who has gained the respect of intelligent men and the love of little children; who has filled his niche and accomplished his task; who has left the world better than he found it, whether by an improved poppy, a perfect poem, or a rescued soul; who has never lacked appreciation of earth's beauty or failed to express it; who has always looked for the best in others, and given the best he had; whose life is an inspiration, whose memory a benediction."

DEPARTMENT OF THERAPEUTICS

RADIUM

BY HERBERT MCINTOSH, A.M., M.D., BOSTON, MASS.

The element radium was discovered in 1898 by Madame Curie. Roentgen's discovery of the X-ray led to Becquerel's observation that uranium and its compounds had the property of affecting a photographic plate through an opaque layer of black paper. It was also found that pitchblende, an ore of uranium, had as powerful an effect as pure uranium, though containing only fifty or sixty per cent of that metal. From this circumstance Madame Curie drew the inference that pitchblende must contain a more active substance than uranium. This substance was isolated after laborious researches and called radium because of its most characteristic property.

CLASSIFICATION

Radium belongs to a class of radio-active bodies of which uranium, thorium, polonium, and actinium are also members. The atomic weights of uranium, thorium, and radium are respectively 238, 232, and 225, or 258. The atomic weights of the remaining members of the group have not been determined. Of these metals radium is by far the most highly radio-active, being one million times as radio-active as uranium.

PHYSICAL PROPERTIES

Radium gives off an emanation and three kinds of rays. It also emits light and heat, and maintains itself at a higher temperature than the surrounding air.

The emanation is a heavy, luminous gas which has the property of rendering other bodies luminous which it touches. It can be liquefied by cold and traverse thin metal plates.

The rays are of three kinds, viz: alpha rays, beta rays, and gamma rays. The alpha rays are positively charged particles shot off with great velocity, having about twice the size of a hydrogen atom. They have been identified as the metal helium. The beta rays and gamma rays are similar to those emitted by a Crookes tube. Thus the beta rays are identical with the electrons reflected from the cathode of the Crookes tube, otherwise called the cathode rays.

The two rays are similar to the X-rays of the Crookes tube, with the difference that they are produced by an inherent energy residing in the metal itself. There are other differences, however, between the beta and gamma rays of radium, and the kathode and X-rays of a Crookes tube. The electrons constituting the kathode ray travel with a velocity about one tenth that of light, the electrons constituting the beta ray travel with almost the velocity of light. The beta rays, like the kathode rays, are deviated by a magnet, but with much greater difficulty.

The gamma rays are much more penetrating than the X-rays, casting practically no shadows of the denser portions of the hand. The alpha ray, however, can scarcely penetrate the thinnest sheet of paper, and is very slightly deviated by the action of the magnetic field.

What are the emanations? It was said above that the alpha ray is believed to be an atom of the element helium. This has an atomic weight of four. If, however, the atom of radium weighing, we will say, 225, expels a portion of itself weighing 4, there will be left a new atom weighing 221. Now, a well-known group of gases had already been discovered by the joint labors of Lord Rayleigh and Sir William Ramsey. The series runs thus: helium 4, neon 20, argon 40, krypton 82, and xenon 128. The residue left after the expulsion of the helium atom is 221, the highest member in the above group, being somewhat less than twice the weight of xenon, and is the radium emanation. It is produced steadily from radium — one atom for every alpha particle expelled.

In like manner radium belongs to the group of alkaline earths of which the other members had for a long time been known: namely, calcium 40, strontium 87, and barium 137.

We have thus the alpha ray — otherwise called helium — and its residue, a new gas, which is called the radium emanation. As already noted this emanation has the power of imparting an activity to surrounding objects, which, however, quickly decays. This emanation is deposited upon the surface of contiguous bodies as an invisible and unweighable film. The fact that the emanation decays brings to view another remarkable fact. The decay of the emanation is due to the expulsion of an atom of helium — the alpha ray — leaving a new residual atom weighing 217. This is the solid form of the radium emanation and is the origin of the imparted activity above referred to. This is called by Rutherford radium A. This, in like manner, expels an alpha atom and leaves a residual atom weighing 213, which is called radium B. These changes have been elaborately studied and tabulated until radium G has been reached as the ultimate product of disintegration. Radium F is identical with the new element polonium which is found as a constant companion of radium in pitchblende. Polonium emits alpha rays, but no other product. We therefore assume the existence of radium G, which expels neither alpha nor

beta particles. Counting now the number of alpha particles or helium atoms emitted in the process, we find that they amount to five, or 20 units. Subtracting 20 units from 225, the atomic weight of radium, we have 205. As now the atomic weight of helium is slightly less than four, we see that the difference may be 207, which is the atomic weight of lead.

Lead may therefore be radium G. Radium bromide, which is the most useful salt for therapeutic purposes, occurs in small crystals or granules and has a yellowish-brown color.

PHYSIOLOGICAL EFFECTS OF RADIUM

Radium produces

- (1) Effects upon the skin, which may result in inflammation and ulcers.
- (2) Effects upon the nervous system, which may result in paralysis and death.
- (3) Luminous effects upon the ocular apparatus of the partially blind.

CHEMICAL EFFECTS

Radium liberates iodine from iodoform, produces ozone, converts corrosive sublimate into calomel, decomposes water, and affects silver salts used for photographic purposes.

ELECTRICAL EFFECTS

It has been shown that an insulated body containing radium will, if placed in a vacuum, become positively charged. This is due to the discharge of negative electrons.

BACTERICIDAL EFFECTS

The experiments of Crookes have shown that radium has a considerable bactericidal action.

METHOD OF APPLICATION

The salt of radium is enclosed in a glass tube containing five or more milligrammes, which is applied for a few seconds to the area to be treated.

It may also be enclosed in capsules covered with mica. Another method is to enclose the salt in a button, the front of which is made of aluminium 1-100 of an inch in thickness, and the back of lead of equal thickness. The button is supplied with a screw thread which permits it to be placed in holders adapted to the situation of the lesion to be treated.

Still another method is to enclose the radium salt in a small metallic capsule with a front of quartz. This is also provided with a thread for attachment to suitable handles.

MEASUREMENT OF RADIO-ACTIVITY

For purposes of measurement the radio-activity of uranium is taken as unity. Thus pure radium bromide has a radio-activity 1,800,000 times as great as that of uranium. Most specimens of radium bromide are mixed with barium bromide. A good sample of radium bromide should produce phosphorescence on a barium-platino cyanide screen through several copper coins.

COST OF RADIUM COMPOUNDS

The cost of a grain of gold is about five cents. The cost of an equal quantity of radium bromide is about \$5,000. It thus appears that the salt of radium most suitable for therapeutic purposes is about one hundred thousand times as expensive as gold. Specimens of radium containing barium-bromide are less expensive but also much less effective. The price of a pure sample is, therefore, almost prohibitive for private practitioners, and largely confines the use of this most interesting substance to public institutions which can afford to make large expenditures for therapeutic and experimental purposes.

THERAPEUTIC USES

Radium has been found to be exceedingly useful in the treatment of lupus and rodent ulcer. Epitheliomata of small extent are very amenable to treatment. Excellent results have been reported in the treatment of port-wine marks. The cures are quickly and painlessly effected. The method of treatment hitherto employed by means of the electric needle is so tedious and painful as to render it impracticable and useless in many cases.

Pruritus yields remarkably to exposure to radium bromide. The results are so prompt in this painful condition as to excite surprise as well as gratification.

In this city Dr. Williams has been a pioneer in the application of radium to the cure of disease. He remarks, "A surprisingly large proportion of external cancers, especially epitheliomas, have healed and remained healed for some years under treatment by radium, and my experience thus far indicates that for certain cases of new growths it is a better remedy than those previously at our command."

Radium produces favorable results more promptly in many cases than the X-ray.

Other diseases in which varying degrees of success have been obtained are lupus erythematosus, psoriasis, trachoma, eczema, warts, keloid, and acne. In all these diseases the rays which are of value are the beta rays.

The gamma rays, owing to their high degree of penetration, may be employed in certain forms of facial neuralgia. In using the gamma rays the beta rays may be shut off by interposing an aluminium plate of suitable thickness.

We may fairly conclude from the clinical results following the use of this new substance that we have in radium a distinct addition to our therapeutic resources, yielding results superior to the X-ray and the knife in many cases, but unfortunately so expensive as to forbid its extensive application to the relief of human suffering.

TREATMENT OF DISEASES OF THE HEART

BY DARIUS L. POWE, M.D., PROVIDENCE, R. I.

THE successful treatment of diseases of the heart depends almost entirely upon a correct diagnosis of the malady existing. Many people have died apparently from heart disease; later investigation, however, established the fact that death was the result of another disease, and the heart had been affected in a sympathetic manner only. Numerous structural lesions of a fatal character have been revealed for the first time at the post mortem, thus demonstrating the extremely difficult task involved upon the physician who undertakes to positively differentiate between functional and structural diseases of the heart.

Acute myocarditis, endocarditis, and pericarditis, usually the result of some other existing inflammatory disorder, require no special or particular treatment. The same remedies used to combat acute inflammations in other parts of the body will have a corresponding and beneficial effect on the inflamed tissues and membranes of the heart.

Amyloid degeneration, which occurs mostly in fleshy people, and some other morbid conditions of the heart, is relieved somewhat by constitutional depletants. Our preference in these cases is the saline cathartics,

especially sulphate of magnesia, given in teaspoonful doses several times daily, the diet being confined principally to proteids.

In order to derive any material benefit from the treatment of valvular cardiac lesions, it is imperative that the patient's general constitution be kept as near the standard of health as possible, thereby giving nature an opportunity to repair the damages previously wrought through a process of endocarditis. No particular remedy, in our opinion, has any direct or decided beneficial effect on the diseased valves of the heart.

Simple cardiac palpitation, usually the result of disturbed innervation, although very distressing and annoying to the parties so afflicted, is not considered particularly dangerous to life, but if allowed to continue for a long period of time is liable to terminate in some of the numerous forms of structural lesions to which the heart is subject. Therefore every effort should be made by the attending physician to relieve his patient as early as possible of this aggravating condition. In the first place search diligently for the cause and remove it as speedily as possible. Until this is accomplished the heart regulators and sedatives, so called, will have little or no permanent effect. In excessive palpitation accompanied with hysteria and great excitability, a hypodermic injection of 1-20 to 1-10 gr. of apomorphia will invariably give instant and in some cases permanent relief. In continuing the treatment bromide of sodium or bromide of potassium, given in moderate doses about three times a day, is one of our best sedatives and in many cases all that is needed to complete a cure. In purely neurotic conditions, with moderately strong and uneven pulse, circulation free and unobstructed, fluid extract of valerian in ten to thirty drop doses once in two or three hours will be of very great benefit to the patient. In very rare cases where the cardiac action is feeble and intermittent *cactus grandiflorus* (specific medicine) given in five-drop doses every one or two hours will very often relieve the condition. But too much faith should not be placed in this remedy, for in our opinion its virtues along this line have been very much over-estimated. If a tendency to syncope is a marked feature present, a resort to alcoholic stimulants is justifiable. Compound spirits of lavender and ammonia will be of benefit. In cardiac neuralgia nitro-glycerine, 1-100 of a grain, morphine, and lobelia are remedies to be relied upon.

The management and treatment of the different varieties of enlargement of the heart depends upon the advancement which the disease has made previous to our attendance in the case. Advanced stages of dilatation with thinning of the walls is not in reality amenable, according to our present knowledge, to any form of medical treatment that is likely to be of permanent benefit; nevertheless, great benefit and relief can be derived from a judicious constitutional treatment with tonics and stimulants. Strychnine and iron with some of the vegetable bitter tonics will perhaps give the best results.

Hypertrophy of the left ventricle is by far the most common form encountered. Continued palpitation and shortness of breath are among the earliest signs of failing compensation, which can be, at least, partially restored by the administration of the arterial sedatives; veratrum, aconite, digitalis, lobelia, and glonoin, given according to indications. In advanced stages, with regurgitation, anasarca, cyanosis, and dyspnoea, our best judgment in selecting and administering the most potent remedies at our command will fail to give more than temporary relief unless the patient's system is first thoroughly purged of all impurities, which, owing to poor circulation of blood, partial arrest of retrograde metamorphosis, and defective elimination has been accumulating for perhaps years. In this dilemma, for immediate relief we have been in the habit of giving thirty drops of specific lobelia hypodermically with the very best of results. The remedy given as above mentioned is certainly a powerful blood purifier, forcing the secretory organs to active action. An emetic, especially if the stomach is foul and overloaded, is one of the essentials in the inauguration of treatment. Hydragogue and cholagogue cathartics should be given for days and sometimes even weeks before we can be positive that the elimination of material effects is complete. In the mean time we give two drops of fluid extract of digitalis alternated every hour with 1-100 gr. of nitroglycerine. If anasarca persists apocynum, crataegus, and strophanthus can be used to good advantage. Apparently hopeless cases have been restored to comparatively good health under this form of treatment.

THE NECESSITY OF CARE IN TREATING EACH PATIENT

BY CHARLES E. BUCK, M.D., BOSTON, MASS.

THERE are certain seasons of the year when apparently all established weather signs fail. Just so does the general practitioner find unfortunately that at times the many so-called established diagnostic "GUIDE POSTS" directing him to safety have in some unaccountable way become turned around and point in the other direction.

Just how this fact works out the following case will serve as an illustration.

A female patient twenty-five years of age came to the writer with a history of grinding abdominal pains of recent origin, and occurring at regular intervals, usually in the early afternoon. These pains were referred chiefly to the right iliac region, although they were quite diffuse generally. No history could be obtained that would account for the

disturbance other than some slight attacks of indigestion of more or less painful nature. At this time there was no organized tenderness accompanying the pain.

The patient was treated for indigestion, and as there was no temperature or abnormal pulse rate exhibited, no fears were entertained of the ultimate result of the treatment. The patient was not heard from for a week, when a call was made at the home and the abdominal pains were found as troublesome as before. There was no temperature or increased pulse, and the pains still were of an apparent functional nature. A blood count revealed no increase in whites, and the reds were normal, as was the hemoglobin. Abdominal palpation revealed no tumor or pathological tenderness. A surgeon was called in consultation, and he failed to find any cause for alarm.

The case was sent to the hospital for observation. No new signs appeared, but the pain was constant and tenderness became organized, but there was at *no time*, either by pulse or temperature or blood count, any evidence of a septic process of any nature.

Not satisfied with the progress of the case the surgeon decided to make an exploratory incision into the abdominal cavity to see if such would clear matters up some. This operation revealed a condition that was startling, to say the least, to all parties concerned.

The appendix was found to be very much elongated and retroverted on the intestine and adherent to it for a distance of about half the length of the ascending colon. The omentum was profusely infiltrated with dark venous blood and an exudate was present over the whole area involved.

The necessary procedure was followed, the wound partly closed, and drainage left, and the patient sent to the ward for recovery. From present conditions she will eventually return to good health, but the call was very close, and the undertaker lost one more case through the good luck rather than good management of the doctor.

The object of this paper is not so much for diagnostic purposes, as no diagnosis was attempted, as to put us on guard against these slow, insidious conditions that "MULL" along without any apparent objective or subjective signs to aid us in a diagnosis, and that seem to be very resistant to ordinary routine treatment.

Had not good fortune smiled on this patient and incidentally upon the doctor, nothing could have saved her in probably forty-eight hours, when the process would have progressed so far that no available means would have been effectual.

Verily it stands us in hand to "watch out" for these cases that "say so little and mean so much."

PHYSICAL THERAPY

FIRST STEPS IN MEDICAL ELECTRICITY

BY HERBERT MCINTOSH, A.M., M.D., BOSTON, MASS.

PART II. CHAPTER VIII

Diseases of the Skin

ACNE VULGARIS.—The classic procedures including the removal of comedones thorough cleansing of the skin, the correction of dietetic errors, and the general improvement of the health should be carefully carried out. Supplementary to these procedures are:

(1.) *The X-ray.*—Excellent results may be secured by successive irradiations, the time and number of exposures to be determined by the progress of the case.

(2.) *Light.*—The concentrated energy of the electric arc and the electric arc bath are considered by Cleaves the most useful modality in acne vulgaris. Since it is desired to produce a systemic condition, the electric arc bath is to be preferred. The concentrated energy of the electric arc may be associated with a compressor. Finsen reports a number of cures.

(3.) *High Frequency Vacuum Discharges.*—Very encouraging results follow in some cases from high frequency discharges administered by vacuum electrodes.

(4.) *Ultra Violet Light.*—Acne vulgaris and acne rosacea have both improved under the influence of the ultra violet light.

(5.) Other procedures of utility are the continuous current, especially where the lesions are sluggish, electrolysis in the severe pustular types, and central galvanization and faradization.

ACNE ROSACEA:

(1.) *Electrolysis.*—This disfiguring disease may be treated successfully by electrolysis. For this purpose a jeweler's broach made pointed like a trocar is well adapted. The needle transfixes the dilated blood vessel in several places. The process is continued until the vessels are thoroughly destroyed. A current of from one to three milliamperes is sufficient. The active pole is of course the negative.

(2.) *Concentrated Arc Bath.*—Supplementary to the above treatment, concentrated light energy may be employed. Lerreode has reported a number of cases.

(3.) *Direct Current.* The direct current is also of great value, as are the other procedures mentioned under acne vulgaris.

ALOPECIA:

Several dermatologists have used static electricity with success. The crown breeze, in the experience of the author, has resulted in a marked increase in the health and vigor of the hair. The patient should be connected with the positive pole of the machine. It is, of course, unnecessary to say that where the scalp has become tense and shiny the hair follicles are destroyed and are incapable of producing hair under any treatment.

Direct Current.—The negative pole attached to a well-moistened pad may be applied to the scalp every other day with a current of five to ten milliamperes. The positive pole may be held in the hand or placed on a convenient spot upon the body.

ALOPECIA AREATA:

- (1.) *High Frequency Vacuum Discharges* have been found useful.
- (2.) *Phoresis.*—A copper electrode used as the anode is efficacious, especially where the disease has a parasitical origin.
- (3.) *Ultra Violet Light.*—This light, furnished by a condenser spark, arc, or Kromayer lamp, has been highly successful in restoring the growth of hair.
- (4.) *Concentrated Energy of the Electric Arc.*—In Finsen's first report of his work, published in England and America, he notes several cases which were cured by the concentrated energy of the electric light.
- (5.) *The Direct Current.*—Apparently this is the least useful modality in the treatment of this disease.

ANGIOMA:

Under this head may be discussed three types, viz. (a) *Naevus vasculosus* or birthmark. (b) *Telangiectasis* or *naevus* occurring in adult life. Acne rosacea is a form of this disease. (c) *Angioma cavernosa*.

Naevus Vasculosus, or birthmark, may be destroyed by a tattooing process. A fine needle attached to the negative pole and inserted vertically into the skin. It is a slow and somewhat painful process, but produces good results. Not more than four milliamperes should be used.

(1.) *High Frequency Spark.*—Dr. Bergonie employs the high frequency spark. This method, followed by Dr. H. Lewis Jones, is believed by him to be by far the most efficient in removing these stains. The X-ray has produced excellent results.

(2.) *Radium* is said to be more successful than the X-ray in the management of these cases.

Telangiectasis.—The treatment here is essentially the same as that already described under acne rosacea. However, in the larger varieties two or more needles may be employed arranged parallel to each other in a specially constructed needle holder, in which the needles are alternately positive and negative. These are introduced parallel to the skin,

and currents running as high as twenty, thirty, or forty milliamperes may be employed.

(1.) *Galvanic Cautery*.—Dr. H. Lewis Jones, who has recently reported upon sixteen hundred cases of naevus treated by electrical methods, regards the electric cautery as the best treatment in these cases. He is careful, as in naevi of the scalp and forehead, to carry the point of the cautery down to the bone, having noted that this type of naevus frequently involves the pericranium.

(2.) *X-ray and Radium*.—These may be employed as in the preceding variety.

(3.) *Zinc Phoresis*.—In the case of naevi which are largely subcutaneous, excellent results may be obtained by the use of zinc needles connected with the positive pole.

(4.) *Arc Light*.—In both these varieties of naevus concentrated light energy is useful, the deep red color being reduced in the former, and the arborization in the latter.

Angioma Cavernosa.—Here there are comparatively large chambers filled with blood and separated by partitions of fibrous tissue. These, if not too large, may be cured by the electro-cautery or electrolysis. Where a naevus of this type is larger than one half inch in diameter it should be referred to the surgeon.

TINEA:

The different forms of tinea readily lend themselves to electrical treatment. They are five in number, and are the result of the growth of microscopical vegetable organisms in or upon the skin. These belong to the class of hypomycetes. The three varieties of ringworm of the scalp, beard, and body are produced by the growth and development of the *trichophyton*. *Tinia favosa* is produced by the *achorion Schönleini*, and *tinia versicolor* by the *microsporon furfur*. These organisms are all fungi, producing a branched network of threads or *mycelium* and spores.

(1.) *Phoresis*.—From the nature of these diseases it can readily be perceived that they lend themselves easily to phoresic treatment. For this purpose an electrode saturated with a three to five thousand solution of corrosive sublimate should be attached to the positive pole and applied to the affected area. The current should not exceed eight milliamperes. The areas to be treated should previously be cleansed, the crusts having first been carefully removed. It would seem that a salt of copper would be equally efficacious.

Of these diseases, *tinia favosa* is not common in this country.

Tinia versicolor or *chromophytosis*, affecting most frequently patients afflicted by phthisis or hyperidrosis, is not in itself a serious affection.

Of the three forms of diseases produced by the *trichophyton*, *tinia capitis*, or ringworm of the head, is most serious. *Tinia barbae*, or ringworm of the beard, or barber's itch, is also exceedingly obstinate. *Tinia corporis*, or ringworm of the body, is quickly responsive to treatment by ordinary drug medication. The method above described affords an admirable means of quickly destroying by phoresis the parasitic cause of this group of unsightly and contagious diseases.

(1.) *X-ray*.—*Tinia capitis* and *tinia barbae* may be successfully treated with the X-ray. Sabaroud has described a method of timing the exposure by means of pastiles of platino-cyanide of barium, so that the dosage may be so adjusted as to insure depilation without producing dermatitis.

(2.) *Concentrated Light Energy*.—This is applicable to the treatment of all these varieties of parasitic disease, and numerous cases have been reported in which cures were effected by the concentrated energy of the electric arc.

CARBUNCLE:

(1.) *The direct current* has been successfully employed to abort phlegmonous inflammations. Where they have, nevertheless, advanced to the stage of necrosis, recourse may be had to the electro-cautery, which is both aseptic and bloodless. The alternative method is excision and curetting.

(2.) *Ultra Violet Light*.—Several cases have been reported in which carbuncle has been aborted by the ultra violet light.

CICATRICES.—These may occur in three forms, *viz.*: (a) atrophic, (b) hypertrophic or depressed, and (c) telangiectatic. For all of these types electrolysis is the best treatment. In the atrophic or depressed type the object is to remove the superficial layer of epithelium, and thus by means of dressings to bring up the granulating tissue to the level of the surrounding skin. It is a tedious process and not likely to be undertaken in multiple scars resulting from small pox.

In the telangiectatic type the same method is employed as described under "angioma."

Where the hypertrophic scars are large it may be preferable to employ plastic surgery.

KELOID:

This is not strictly a hypertrophic cicatrix, since it is believed to occur spontaneously without previous traumatism, though this point is not positively proved. It is characterized, at any rate, by an extension of connective tissue beyond the site of the original injury, if due to traumatism, often assuming the form of arms having a crablike appearance.

To be Continued

PRACTICAL HANDBOOK OF MEDICAL ELECTRICITY

BY HERBERT MCINTOSH, A.M., M.D., BOSTON, MASS.

WE are very glad to present to our readers this month the chapter topics of this work, which has been in preparation for over a year; portions of the work have been given our readers during that time under the title "First Steps in Medical Electricity." Those who have read these fragments will be very much pleased to have the entire work.

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DEPARTMENT of DIETETICS

NOURISHMENT IN ACUTE DISEASE

BY ALIDA FRANCES PATTEE, MOUNT VERNON, N. Y.

IN the treatment of disease there are few questions which have to be considered so often in the daily routine of practice as those which concern the proper support of the patient.

A good nurse will never exceed or depart from the physician's instructions; but there are occasions when her possession of accurate, even if limited, knowledge on the subject of chemical and physiological action of food will enable a physician to give more definite directions, which will assist him in the performance of his duties, and will add greatly to the comfort and wellbeing of the patient.

The nurse has a far better opportunity than the physician to judge of all the conditions of the patient's digestion, and his likes and dislikes for different foods, and she should not fail to report them to the physician in charge and understand very positively to what extent she is to be permitted to humor her patient, and substitute one form of food or drink for another.

It may happen, from lack of care or indefinite instruction, that the food served will neutralize the effect of the medicine, either by over-feeding, or by irregularities in feeding, which disorder digestion and interfere with the beneficial effect of the medicine.

Often the nurse may conscientiously serve one form of food ordered, offering it in spite of the patient's dislike and nausea, with the result of half starving him. When her instructions have not been specific, or have not provided for emergencies, she should make it a point to have them clearly understood at the next visit of the physician.

To be able to carry out these instructions and offer nourishment intelligently, a thorough practical knowledge of dietetics is necessary, and should be the foundation of every nurse's training. If we wish to succeed in avoiding nausea, vomiting, loss of strength, and even loss of life, we must learn to offer nourishment to the patient in a suitable form, in the quantity and at the times suited to his digestive power, and so adapt his food to his capabilities.

Feeding the Sick.—“In no branch of her work can the nurse be of more service than in her ability to feed a very sick patient properly. There are many details which can only be mastered by extensive sick-

room experience and close observation; and much depends upon that tact and discretion which can never be learned from text-books and lectures. The following suggestions, however, will be found applicable in many instances."—*W. Gilman Thompson, M.D.*

This subject has been so ably treated by Dr. Thompson (*Practical Dietetics*, 2d ed.) in his chapter, "Administration of Food to the Sick," that permission has been asked, and kindly granted, to use extracts from that chapter; also, by the kindness of Mrs. Ellen R. Richards, quotations have been made from the article, "Nourishment in Acute Disease," from the "Rumford Kitchen Leaflets."

Those who are ill are often allowed to drift into critical conditions through not being properly supplied with such nutritive material as their enfeebled powers can digest. Many have perished because those around them did not know how to feed them, and either withheld food altogether, or gave them that which was unsuitable, through ignorance. Even when the patient is confined to bed and prevented from taking any kind of voluntary exercise, he still requires heat and energy for the involuntary action of heart, lungs, and the process of living, and their healthy nutrition must be provided for by a supply of plastic material in the food.

Feeding in Acute Disease.—The preparation of food for those who are seriously ill is a matter of vital importance, for the life of the patient often depends either upon the maintenance of strength during the acute period of the disease, or on the recovery of power during convalescence. Since acute disease is accompanied by fever, we must consider the effect of feeding in cases where the temperature is febrile in character; also the amount of food, its quality and quantity, together with other conditions affecting its absorption.

In acute disease accompanied by fever, what are the conditions? The body loses weight, urea is increased, and carbonic acid and water are excreted in larger amounts than in health. All of this loss is not dangerous if permitted to go on for a few days only, and if the amounts do not exceed certain limits. But to replace these losses we are at a disadvantage as regards the ability of the system to assimilate food. In fevers the appetite is small, or may be completely lost. The saliva, the gastric juices, pancreatic fluid, the bile are less efficient in action or diminished in amount during high temperature.

The stomach is very sensitive, in part, perhaps, through sympathy with the increased sensitiveness of the nervous system as a whole. If there is much hyperesthesia of the digestive tract, as in typhoid, in peritonitis, in dysentery, or gastro-enteritis, one must be careful not to give too much food, and it should be in a liquid form and partially digested.

Evidences of Digestion.—Our attention should be devoted not only to what is put into the alimentary canal, but also to what goes out. For

instance, if curds of undigested milk are found in the stools of a typhoid patient, the quantity of milk should be diminished, or it should be diluted.

Every careful observer of the sick will agree that many patients will starve simply from the want of attention to the means which alone make it possible for them to take food. For example, if the patient has a fever with remission and intermission, it is of the first importance to remember that the ability to digest food at these intermissions is greater, and it is then that the most nourishing portion of the diet should be given.

It must be borne in mind that, contrary to the prevalent notion, the increase of body heat is not responsible for the wasting of the fever patient. The emaciation is due almost entirely to the inability to receive and digest the food, which in turn arises from the irritable state of the stomach and bowels and the defective secretion of the digestive fluids.

It is the administration of unsuitable food that must be guarded against, and also the giving of nourishment in quantities and at times unsuited to the digestive powers of the patient. All food is changed into liquid in the process of digestion before it can be absorbed into the blood. Liquid food, therefore, is given to the very sick because it can be digested with the smallest amount of labor of the body.

Predigested milk possesses the decided advantage in that it aids the assimilation of the milk without adding to its bulk, as do lime water and other substances.

By diluting milk, stimulants, and gruels too much, or making beef tea too weak, the quantity of the fluid is so great that the patient soon tires of swallowing, and stops before enough nourishment has been obtained. One should not give what cannot be digested, nor less than can be assimilated. The attendant must have a constant watch over the condition of the patient's powers of digestion, and it is necessary for her to know how to choose such variety in the diet as to include both what is palatable and what will afford a proper amount of nourishment.

The Appetite.—As the appetite of the sick often requires tempting, the greatest pains should be taken in the preparation of the invalid's food. The lack of desire for food may be due merely to defective cooking, to the serving of meals at inopportune moments, or to the fact that the food selected is not to the patient's liking. A desire for food may exist, but not for the particular food offered, and it is the province of the nurse to differentiate.

Only a small quantity of food should be given at one time, so that the appetite may be aroused without the digestive organs being overtaxed. It is much better to serve small quantities often than too much at one time. A tablespoonful of nourishment given every half hour may be retained and digested, and do the patient good, when if a larger amount were given the stomach would reject it.

The majority of weak patients are unable to take food of any solid kind before eleven o'clock in the morning, yet before that time comes they are apt to become exhausted. This would not be likely to occur if a spoonful of some liquid nourishment or stimulant ordered by the physician were given every hour or two, from early morning up to the time for taking the solid food, which the patient would then probably be able to do by noon.

Punctuality in serving meals should be carefully observed, for an appetite ready at the accustomed hour may fail if the meal is delayed. There is much unconscious habit in regard to eating.

All noise in the preparation of food and smell of cooking should be kept from the sickroom. The nurse should never eat her meal or taste the patient's food in her presence, and should always have a cheerful manner and a cleanly, tidy appearance. These things have much effect upon the patient's appetite.

Details in Feeding.—The patient should be saved from thinking as well as from physical exertion, and it is unwise to ask him what he would like to eat, for it is often the unexpected that pleases.

When possible it is well to bathe the patient's face and hands before offering a meal. The mouth should be rinsed each time after eating with pure water or diluted boraxwater (two teaspoonfuls to a tumbler of water). The mouth should be kept thoroughly cleansed, for if the lips are allowed to become parched and sour, the patient will refuse nourishment which he might otherwise take. When a patient cannot rinse his own mouth it must be frequently cleansed by the nurse with a swab of fresh cotton, fastened in a small, flexible stick. A tongue scraper made of a whalebone bent to a loop may be used before serving food; thus the taste nerves will be uncovered and the appetite improved.

When the patient is first allowed to sit up for half an hour, it is well to utilize this time for giving the principal meal of the day, which is likely to be eaten with more relish at this time, and perhaps better digested in consequence. If the patient is only allowed to partially sit up in bed, the nurse should see that the position is comfortable, and that the food tray does not cramp the arms and legs, and care taken that no crumbs get into the bed.

The effort of sitting up may become fatiguing to the invalid, and so destroy his appetite before the meal is half done, or he may not be able to feed himself or to raise his head. In such cases the difficulty can be obviated by placing the hand beneath the pillow and raising both together gently.

In feeding fluids at these times always serve in small tumbler, not more than two thirds filled; see that swallows are not taken during inspiration, and that each mouthful is swallowed before another is offered. In

case the head cannot be raised, food may be given by means of a glass tube or feeding cup.

The feeding of unconscious patients demands especial care. They should be given only liquid nourishment, and fed with a spoon, or through a catheter. If the jaw is set, a medicine dropper may be utilized; not over a teaspoonful should be given at once, and the nurse must be sure it is swallowed before she gives more. Feeding with the stomach tube is sometimes resorted to, and nasal feeding is employed in the case of young infants.

The awakening of a patient to take nourishment depends upon his need of the nutriment and upon his ability to go to sleep again. In serious cases it should be given at stated intervals if the patient drops to sleep easily after taking it. Some patients, however, are annoyed by being awakened, and cannot sleep again. In such cases it may be that sleep will be more beneficial than food.

TOAST

“When bread is toasted there is no change in the percentage of total nutrients on a dry matter basis. The change is in solubility and form, and not in amount of nutrients available. Some of the starch becomes dextrine, which is more soluble and digestible. Proteids, on the other hand, are rendered less soluble, which appears to slightly lower the digestive coefficient. They are somewhat more readily but not quite so completely digested as those of bread. Digestion experiments show that toast more readily yields to the diastase and other ferments than does wheat bread. Toasting brings about ease of digestion rather than increased completeness of the process. Toast is a sterile food, while bread often contains various ferments which have not been destroyed by baking. These undergo incubation during the process of digestion, particularly in the case of individuals with diseases of the digestive tract. With normal digestion, however, these ferment bodies do not develop to any appreciable extent, as the digestive tract disinfects itself. When the flour is prepared from well-cleaned wheat and the ferment substances which are present mainly in the bran particles have been removed, a flour of higher sanitary value is secured.” — *Human Foods* — Snyder.

THE MEDICAL ROUND TABLE

BERBERIS AQUAFOLIUM

EDITOR JOURNAL OF THERAPEUTICS AND DIETETICS:

THE following is the report of the Eclectic League for Drug Research on "Berberis Aquafolium" :

Specific Indications: Chronic or subacute eruptions on the skin, accompanied by hepatic torpor, general lassitude, and other evidences of incomplete tissue metamorphosis.

The whole plant contains several alkaloids and principles, the most common being Berberine, which is found in hydrastis, podophyllum, calumbo, and a great many of the so-called alteratives and tonics.

Its action on the skin, however, is something more than that of berberine, which is pre-eminently the muscle remedy, although that principle must play an important part. Since hydrastis has reached its expensive plane, I have gradually found berberis capable of accomplishing that drug's work and often acting better than it was wont to do.

In at least thirty or forty cases of syphilis, berberis, combined with other drugs as indicated, has given excellent cures, removing the skin signs as a rule within three months.

If continuously given other actions may be expected, as constipation, derangement of the stomach, etc. It appears not so much to remove effete material from the body as to merely throw it into the blood, its action being enhanced by the addition of echinacea, lappa, etc.

Speaking of the encrustation on the scalps of infants, Dr. Fuller, of Kentucky, says that in a large number of cases he has never had it fail. Dr. Waddington, of Michigan, praises it in the scaly syphilides. Other uses mentioned were the acnes of the faces of women, dry eczemas, various gastro-intestinal troubles marked by torpor, etc.

I am using it at present in a case of psoriasis of fourteen years' standing complicated with syphilis of one year's duration. Its use in three weeks has almost removed external signs and the patient is enthusiastic.

Large doses must be used and decreased as the torpidity decreases, ceasing its administration if untoward signs appear.

The study for July is chionanthus; for August, thuja; September, geranium madulatum. Reports are solicited.

W. LEMING, M.D., LEXINGTON, KY.

VERBENIN AND SOLANIN

EDITOR JOURNAL OF THERAPEUTICS AND DIETETICS:

In reply to your request for clinical reports concerning verbenin and solanum, I will say that although I have not used these remedies very extensively in epilepsy, yet in the cases used they have not disappointed me.

I have used Abbott's preparations of the drugs, the concentrations verbenin and solanin. I first came to use them in epilepsy because one case I was treating could not stand bromides on account of gastric symptoms. She had a great deal of flatulence and distress, which was only made worse when the bromides were pushed to effect. I therefore discontinued them, and substituted the above-mentioned drugs.

Upon the withdrawal of the bromides, the stomach soon improved, and under the use of verbenin and solanin the epileptic symptoms abated. Dull headaches, which had been almost constant symptoms with the bromides, also subsided with their discontinuance. The patient's general spirits, appetite, and strength improved rapidly under the use of these drugs, and I am therefore well pleased with their effects in epilepsy.

J. EDWARD FRETZ, M.D., Denver, Penn.

These results are very satisfactory, but I have written to Dr. Fretz, asking for a more definite statement of the symptoms, the doses used, time continued, proportions of each drug if used together, length of time the patient went without convulsions, etc. Also suggesting the use of the drugs singly, as we need to know the special indications for each one, and this can only be gained by using the single drug. Besides, in this case, it is quite doubtful whether these drugs are synergistic. My experience leads me to think that where one is helpful the other is not. J. M. F.

THE CULTIVATION OF GOLDEN SEAL

EDITOR JOURNAL OF THERAPEUTICS AND DIETETICS:

I have a little hydrastis growing, and am watching it carefully, with the idea of going into the cultivation of it more extensively. What I have looks fine in color and growth this year, so that I intend to put in a thousand plants for further experiment next year. I have a friend in northern Vermont who has a farm, and last year at my suggestion he set out twenty-five golden seal plants in a shady wood. They wintered well, and are growing nicely so far. We have found out that the old plant begins to

withers as the Solomon's seal does, i.e., the rhizome root advances with the new growth, and the old end begins to die. Just when to catch the root to save it is the problem.

Do you know whether this plant is any better for growing in the shade? It will grow in the light and the sun. Do you know if any one has tried raising it under cloth, as the tobacco raisers of Connecticut grow that plant?

J. O. TILTON, M.D., LEXINGTON, MASS.

The whole business of raising golden seal is still in the experimental stage, and no one knows very definitely the answer to these and many others that suggest themselves to every investigator. The main reason for shading the plant seems to be that it grows naturally in the shade of the forest. It is to be supposed that this is the most favorable condition for its growth and development. As to raising it under cloth, a trial of this would be reasonable, as it is said to resemble ginseng in the methods of its cultivation, and this is raised under cloth. Better try it, and report your results in due time. There are a good many doctors who are showing an interest in golden seal, and are thinking of engaging in its cultivation.

J. M. F.

CARBOLIC ACID IN THE TREATMENT OF BOILS AND CARBUNCLES

EDITOR JOURNAL OF THERAPEUTICS AND DIETETICS:

Have you had any experience in the treatment of boils and carbuncles by the injection of carbolic acid? If so, please explain the technique, describe the results, and give your opinion as to the value of the method.

N. W. SANBORN, M.D., HOLDEN, MASS.

Yes, we have had a personal experience in this matter, which has given us very decided opinions in regard to it. Last December, we found that our Christmas present was to be a fine, plump carbuncle, situated on the right side of our neck, just where the collar pinches. It proved to be, in fact, a large and well-developed one, standing out like an egg, and having nine distinct openings. The night we made up our mind as to its nature, we picked up a tube of ethyl chloride, and hied us to a brother doctor, enlisting his services, with the hope of aborting it. First freezing the carbuncle with the chloride of ethyl, he injected one drop of pure carbolic acid into the center of the swollen mass. Next day, deciding that the dose was not sufficient, we had the injection repeated, this time four and one half drops, as before. This did not succeed in aborting the carbuncle, as we hoped, but it did produce some very remarkable results, the first of which was the almost entire removal of all pain, which never returned to any considerable extent. I never knew of a boil or carbuncle that was

so nearly painless as this. The next thing was to prevent the burrowing of the pus and the spreading of the trouble. It suppurated early, and discharged without the use of the knife. The course of the disease was much milder and shorter than usual, and I am as a result very much in favor of the method of treatment to which you refer. Of course further experience may modify my present frame of mind. Be sure first to freeze the boil or carbuncle, so that the injection will be painless. Let the acid be strictly pure, so that it must be warmed to melt it, and the syringe kept warm while using it. Use a small needle, and inject boldly into the center deep down in the tissues. Use these precautions, and there will be no danger. Keep the carbuncle covered to avoid irritation. We used a thin paste of antiphlogistine, mainly for its soothing effect. J. M. F.

NOTES ON REMEDIES

EDITOR JOURNAL OF THERAPEUTICS AND DIETETICS:

IN active uterine hemorrhage we have no remedy that will control the hemorrhage as quickly as tr. trillium pend, five drops once in fifteen minutes. It is the remedy when the menstrual period comes on every *two weeks*, is very *profuse*, and lasts a *week*. One grain of the first decimal trituration may be given once in three hours.

The *quickest* stimulant for faintness and sudden weakness is one teaspoonful of brandy and aromatic spirits ammonia in a glass of water; drink it all down.

The following remedy has never failed me in the treatment of cholera morbus, and I have used it since I first began the practice of medicine.

℞ Magnesia (best), ℥i.
Aromatic spirits ammonia, fl. ℥i.
Aqua menth pip, ℥iv. Mix.

Sig. Teaspoonful once an hour until relieved.

For dysentery I give:

℞, Tr. aconite, gtts. 10.
Sulph. magnesia, grs. 10.
Aqua, ℥vi. Mix.

Sig. Teaspoonful once an hour.

If there is some blood in the discharge ten drops of tincture ipecac may be added to the above recipe.

For asthma give fluid extract jaborandi, four drops morning and noon, eight drops at bedtime.

For varicose veins inject twenty drops tincture hamamelis behind the vein, whilst the vein is being lifted up with a fold of the skin. Rest is the only after-treatment needed. *Don't give hypodermic injections*

of morphine when given in this way; it *arouses* any *latent* disease existing in the system. I have noticed this in many cases.

No doctor who knows his business will dope his patients.

The old Greeks used to say that "woman was an animal with a pain in her side and constipated bowels." For that pain in the side that about three out of four women complain of, give her three granules of macrotin once in two hours, and she will bless you evermore.

When your lady patients become melancholy and feel as if a "dark cloud was hanging over them," tincture cimicefuga, first decimal dilution, ten drops once in three hours, will cure them.

By ELI G. JONES, M.D., BURLINGTON, N. Y.

BOOK REVIEWS

The Psychic Treatment of Nervous Disorders (The Psychoneuroses and Their Moral Treatment), by DR. PAUL DUBOIS, Professor of Neuropathology at the University of Berne. Translated and edited by Smith Ely Jelliffe, M.D., Ph.D., visiting neurologist, City Hospital; Professor in Materia Medica and Therapeutics, Columbia University, New York, and William A. White, M.D., Superintendent Government Hospital for Insane, Washington, D. C.; Professor of Nervous and Mental Diseases, Georgetown University, Washington, D. C.; Professor of Mental Diseases, George Washington University, Washington, D. C. Sixth edition, revised, 8vo, pp. 466. Cloth, \$3.00 net. Funk & Wagnalls Company, New York and London.

Since the last edition of this work, published several years ago, it has been thoroughly revised and brought up to date along the lines indicated by the title. To the physician who is seeking light along neuro-psychic lines this work will prove exceedingly valuable. The rapidity with which the various editions have been exhausted is the best proof that the medical men of to-day are taking an interest in this method of treatment.

Human Physiology, an elementary text-book of Anatomy, Physiology, and Hygiene, by JOHN W. RITCHIE, Professor of Biology, College of William and Mary, Virginia. Illustrated by Mary E. Wellman. Cloth, pp. 362. Price by mail, 96 cents. World Book Company, Yonkers on Hudson, New York.

This book presents in a very readable and yet in a concise and practical manner the essential points in anatomy, physiology, and hygiene. An interest in the subjects is awakened and the mind well prepared for the practical hints that are a feature of the work. It should easily rank high among the text-books on this subject and ought to find a place in every school where these branches are taught.

THERAPEUTIC NUGGETS

SOME REMEDIES INDICATED BY THE TONGUE

Acid Hydrochloric.— The patient that needs this remedy will present a tongue which is covered with a deep redness and a coating that is of brown color, and there is sordes upon the teeth and lips. *Dose.* Add a sufficient quantity of the acid to half a glass of water so as to make it pleasantly sour, and allow the patient to imbibe this freely until the redness and sordes disappear. Frequently hard cider can be used to good advantage in these same conditions.

Corbo Veg.— This agent is called for by a tongue that is pallid, combined with a salty taste in the mouth and sour eructations from the stomach after eating. There is also the signs of a feeble circulation with a hemorrhagic tendency. The coating is not very thick and is inclined to peel off in places. *Dose:* Use the *Ix* trituration. Of this preparation administer two or three grains every one, two, or three hours.

Spec. Medicine Cuprum.— The tongue that requires this drug will have a tongue that is perfectly clean, and the breath will be sweet. The tinge of color on the skin will be either pallid or else a dirty yellowish green. *Dose:* Ten to twenty drops should be added to four ounces of water and the patient given a teaspoonful every two or three hours.

Acid Sulphurous.— Here the tissues of the mouth are full and dirty, the tongue itself is coated with a moist sticky coating that is of a brownish color similar to that of spoiled beef. Indeed it is frequently called the "spoiled beef" tongue. *Dose:* Five to fifteen drops in a little water should be given these patients every one, two, or three hours.

Spec. Medicine Echinacea.— The patient who calls for this agent will present the symptoms of septicemia. The tongue will be covered with a dirty brown or black coating. The mucous membranes will have a tinge that borders on the purple. *Dose:* Fifteen to thirty drops may be given in a little water every two or three hours.

Spec. Medicine Ipecac.— This remedy is very valuable where there is nausea and vomiting, with a tongue that is contracted, with a pointed tip and of a red color. *The dose must be minute.* Add one to five drops to four ounces of water and feed in teaspoonful doses from every fifteen minutes to every hour, the more minute doses being given the most frequently.

Spec. Medicine Nux Vomica.— This drug will do good work in many instances. The tongue that calls for its use will be soft and moist, with a

yellowish-white coating of a thick, creamy nature; the tongue itself will present a sallow and expressionless appearance, and there will be a sallow expression about the mouth with nausea and vomiting. *Dose:* Two to five drops should be added to four ounces of water and given in teaspoonful doses every half hour to every two hours according to the severity of the vomiting. My experience has proved that the smaller dose more frequently repeated will produce the best results.

Spec. Medicine Chelidonium.—The tongue indications for this remedy are a full, pale, and sallow tongue and mucous membranes, combined with a skin that is also pale and sallow, although this sometimes may be of a greenish tinge. There is very often some hepatic disturbance connected with such a tongue and this condition adds to necessity of prescribing this agent. *Dose:* Two to five drops diluted in water every two to three hours.

Soda Sulphite.—This salt is frequently needed and will give excellent results. The tongue is covered with a nasty whitish coating, and the odor of the breath is sickening. Your patient will tell you that his mouth tastes bad in the morning when he wakes up, but that taste fades away after eating. *Dose:* In acute illnesses give five to ten grains every two or three hours. It has served me admirably in doses of ten to twenty grains, given night and morning in cases of dyspepsia where there is a persistence of this nasty white coating with the bad taste in the mouth when first waking. The best results will be obtained from the impalpable powder. I employ that made by Merck.

Podophyllin.—When you require to use this drug you will have presented to you a tongue that is dirty from its tip to its base and covered with a yellowish coating that is thicker at the base. All the secretions of the mouth are of a pasty character and a yellowish color. There is a sense of fullness complained of by the patient. His skin will be sallow and he will tell you of dizzy sensations. There will be constipation combined with hepatic torpor. *Dose:* Use the 2x trituration. Of this preparation prescribe five grains every two or three hours and use until the peculiar symptoms calling for its use have faded away.

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EDITORIALS

LAST NUMBER OF VOLUME THREE

WITH this issue we complete the third volume of the JOURNAL OF THERAPEUTICS AND DIETETICS, and desire to extend our thanks and appreciation to all who have contributed to make it a success.

The increase in our subscription list has been very gratifying, as it is indicative that our JOURNAL is making a place for itself in the field of medical literature, while our advertising patrons have kept the pages devoted to that portion of our publication filled with the best of the products represented.

We desire to take this opportunity of asking each recipient of the JOURNAL, during the coming year, to carefully scan our advertising pages and correspond with our advertisers as their needs may require. In such correspondence be very sure to mention that you saw the "Ad." in question in the JOURNAL OF THERAPEUTICS AND DIETETICS. It will prove beneficial to all parties concerned.

New plans are being developed for our fourth year which we trust will tend to still further increase the popularity of our publication with both our readers and advertisers.

We hereby ask each of the many recipients of our JOURNAL to feel perfectly free to contribute articles on either Therapeutics and Dietetics or to ask questions in either department. Such procedure on their part will aid us in more quickly attaining our desire, which is to publish a medical journal which shall prove of great value to the busy, progressive medical practitioner.

AN EMERGENCY CASE OF TWELVE REMEDIES.

NO. 1. SPECIFIC NUX VOMICA

FIRST let me call your attention to four statements which will help us to more correctly appreciate the important field that a reliable preparation of this drug occupies. (a) It represents the whole medicinal activity of the plant. (b) It can be given for an indefinite period of time without injury to our patients. (c) The size of the dose should be carefully considered and the smallest amount possible which will do the necessary work be administered. (d) Its action on the human economy must not be overlooked. My experience has taught me that it exerts its force principally upon muscular tissues that are not under the control of the cerebrum, and which are connected with the digestive, urinary, or reproductive apparatus.

In stomachic difficulties Nux Vomica holds a prominent place. This is especially true where there is considerable fulness in the abdomen with pain that is constantly felt in the region of the umbilicus. This condition is doubtless one of atony, and the small doses are needed to produce the best results. Specific Nux Vomica, gtts. ii to v in aqua \mathfrak{J} iv given in \mathfrak{J} i doses every half hour or hour in acute cases and every four hours in chronic cases will prove curative. This remedy may be combined with any other indicated remedy. Such combination will increase its efficacy.

The "Nux" headache is the result of a disordered stomach and is usually due to the conditions described above. The pain is always located immediately above the eyebrows, extending across the frontal region, and is usually accompanied with more or less dizziness. It should be prescribed in the same doses as mentioned above but may be given in bad cases every fifteen minutes until the pain begins to abate.

In minute doses it will many times stop persistent vomiting, when other means have failed. Add one drop to your four ounces of water and feed in teaspoonful doses every ten minutes; frequently the addition of a drop of capsicum will aid in producing quicker results.

This is a grand remedy in infantile colic. Pour a few drops into a teaspoon and return all that is possible to the vial; then stir the teaspoon in a glass of cold water thoroughly. Feed your little patient with teaspoonful doses every five or ten minutes until relieved. Sometimes it acts almost like magic.

It is of the most importance as a tonic to the weakened digestive system when recovering from any serious illness and its use here cannot be lauded too highly. Add v gtts. to iv $\frac{3}{4}$ of water and direct that $\frac{3}{4}$ i doses be given four or five times a day. An albuminate of iron can be substituted for the water if desired.

Nux vomica will prove of great helpfulness in any urinary disturbances that are the result of atonic conditions. In such cases add to the indicated remedies.

Many of the difficulties incident to women are due to a feeble relaxed state of their general health. In such cases the Nux Vomica should not be forgotten. It will prove its worth.

While Nux Vomica is not the quick heart stimulant that one of its active principles — strychnine — is, yet my experience has taught me that its beneficial effects are more lasting. The strychnine is a whip, while Nux acts more slowly and produces better muscular heart tissue; an important point many times.

The drug to be considered next month is *Veratrum Viride*.

DIET AND LONGEVITY

In a very readable article in the August *Cosmopolitan*, under the somewhat sensational title of "The Dangers of Undereating," Woods Hutchinson takes the ground that men in general eat too little instead of too much; and that what the world needs is not a more frugal diet and greater moderation in eating, but pure food and more of it, since the body will not absorb more food than is good for it.

This somewhat startling doctrine he announces in words which cannot be mistaken (nobody ever accused Woods Hutchinson of not being able to make himself understood), of which the following extracts will furnish good and sufficient illustrations:

"It is a rule as unbroken as any axiom of Euclid," he says, "that the death rate in any given community varies in constant ratio with the social position of the individual, being highest in the lowest and most sparsely fed classes, intermediate in the middle and better fed classes, and lowest of all in the wealthiest and best fed classes." Concerning this statement we shall have something to say later on.

And again: "It is a real surprise to some of our smug pseudo-philanthropists to learn from the stern and unimpeachable evidences of the

mortality and morbidity records, that the blameless and frugal poor have the highest death rate, the highest disease rate, and the lowest longevity rate, of any class in the community." If this assertion is limited to the very poor, it is undoubtedly true.

Still further: "The diseases of overfeeding are chiefly the pathologic amusements of the rich, and exercise a comparatively trifling influence upon the death rate. The diseases of underfeeding are the pestilences of the poor that sweep them away by the thousand and by the million."

Which amounts to saying that there are a great many more poor people than rich, and hence the welfare of the poor is of much greater moment than that of the rich — a proposition very few people would deny.

This article as a whole is full of interest, and may serve a good purpose as an antidote to the prevalent theories which magnify the benefits of starvation as a therapeutic measure, and exaggerate the evil effects of the ordinary full diet in health. Nevertheless, it seems to me that his claims go too far, and that some of his conclusions are entirely unwarranted. But of course Woods Hutchinson is nothing if not an extremist. He sees things in the limelight, and pictures them in words perfervid and somewhat dramatic. In this lies his power as a writer for the masses — and few men of our profession have learned better than he the knack of catching the public ear and holding its attention. More than this, his words have the power of rousing his readers to think, and there can be little higher praise than this.

Nevertheless, his conclusions are not always safe ones. Take his first quoted remark, which asserts that "*the death rate in any given community varies in constant ratio with the social position of the individual, being highest in the lowest and most sparsely fed classes, intermediate in the middle and better fed classes, and lowest of all in the wealthiest and best fed classes.*"

Here we have the three social classes, lowest, middle, and wealthiest, defined by the explanatory terms, most sparsely fed, better fed, and best fed classes, identified with the highest, intermediate, and lowest death rate respectively. A fair conclusion from this statement would seem to be that the more a man eats the longer he will live. This does not seem to me to be in accord with the facts in the case, and it is certainly contrary to the common view, whether lay or professional, ancient or modern. Few practising physicians can be found who will subscribe to it. Sanitarians do not teach it. Literature does not inculcate it. Statistics do not sustain it. All these favor the belief that the middle classes live longer and enjoy better health than either the very rich or the very poor.

There is much of good sense, as illustrating the question from the standpoint of the medical profession, in the story of the *bon vivant*, who, beginning to feel a little jaded as the result of his excesses, went to his physician for the means of restoration. He got it in the shape of good advice: "*Eat lightly,*" said the doctor, "*of simple food; no truffles, no wine,*

no coffee, no liquors; don't gamble, go to bed early, and I guarantee you the best of health." "Pshaw!" replied the ungrateful patient, "I know all that as well as you do. What I demand of you is the means to go on and do precisely the opposite of what you tell me."

The point of view of classic literature is given by Milton, where he pictures Adam and the archangel looking down through the ages upon the sickness and suffering of earth:

"But there is yet no other way besides
These painful passages, how we may come
To death, and mix with our connatural dust?"
"There is," said Michael, "if thou well observe
The rule of *not too much*; by temperance taught,
In what thou eat'st and drink'st; seeking from thence
Due nourishment, not gluttonous delight,
Till many years over thy head return;
So mayst thou live, till, like ripe fruit, thou drop
Into thy mother's lap, or be with ease
Gathered, not harshly plucked; for death mature,
This is Old Age."

If we seek assistance in solving the question from a study of the habits of centenarians, we shall find that a large proportion of them are small eaters, and very few are large eaters; that more of them are poor than rich, but that on the whole, the advantage is decidedly with those in moderate circumstances, who are neither very poor nor very rich.

I do not know of any longevity statistics which compare the social classes as such. The nearest to this is found in the statistics of the different occupations. In Massachusetts a table giving the average ages at death of persons over twenty years of age, whose occupations were specified, for a period of forty-three years and eight months, attributes the greatest longevity to "cultivators of the earth," who lead all the other classes by about twelve years, and have exactly fifteen and one half years more than the average longevity of all. Statistics everywhere agree that farmers and agricultural laborers are the longest lived persons in any community. Yet no one — not even Woods Hutchinson — would think of ranking farmers among the wealthiest classes, any more than he would among the poorest. By common consent, the terms "agricultural classes" and "middle classes" are considered almost as synonyms.

It may well be that the farmer and out-door laborer eat a good deal more than the indoor laboring female, who stands at the foot of the list as to longevity in the Massachusetts statistics. But are his better health and superior longevity the result of his eating more, or are they the cause? Is it not that the hard work and out-door air create in him a demand for more

food, at the same time that they give him the ability to digest and assimilate it? Let the woman who works indoors, at a sedentary occupation, undertake to imitate the farmer in the kind and amount of food taken, and what would be the result? Does any one think that her health and longevity would be increased thereby?

Professional men are commonly looked upon as standing higher in the social scale than agricultural laborers; yet their average longevity is less by more than twelve years. Unskilled laborers may be supposed to represent the lowest rank of any of the occupations; while the commercial classes are regarded as standing considerably higher in the social scale. Yet "Laborers — No Special Trades," have a longevity of only half a year less than "Merchants, Financiers, Agents," though the two classes are far apart in the social scale.

On the whole, then, it does not seem to me that Dr. Hutchinson's belief that the longevity of individuals varies in direct ratio with the social class to which they belong, with its corollary that the more one eats the longer he will live, is warranted by the general experience of mankind. Instead of this, I believe that all history and experience show that the advantage is with the middle class and the moderate eaters.

Yet even in the position which he takes in this article, Dr. Hutchinson is a long way in advance of the ground which he took only five or six years ago, in a discussion on Centenarianism, which I had the pleasure of carrying on with him in the columns of the *Medical Sentinel*, of which he was at that time associate editor. In the course of that discussion, he declared that "*neither occupation nor habits of life can be said to exercise any constant influence whatever upon the duration of life in the individual.*"

By advocating in his article in the *Cosmopolitan* a doctrine which claims the utmost influence upon longevity for the very things to which he then denied it, he has written himself down large among those who are not afraid to change their minds, and who may therefore be supposed to know more to-day than they did yesterday.

J. M. F.

FIRELESS COOKERY

DURING the last few years the newspapers and magazines have been more or less filled with references to this method of preparing food for the table.

Each one of our readers is asked to study very critically a series of articles on this subject commencing in this issue, and found in the Department of Dietetics, which have been written by Mrs. Frances A. Seely at our request. The writer is the inventor of a fireless cooker which is of very superior construction and can speak authoritatively along the lines to which this method of cooking is adapted.

It is not only a time saver — a big desideratum in these busy days — but is a money saver as well and, at the same time, prepares the food in a most palatable manner, rendering it attractive and delicious.

The purchaser of this apparatus will always congratulate himself that it was brought to his attention, that he has become its owner, and can be the partaker of its productions.

PRACTICAL HANDBOOK OF MEDICAL ELECTRICITY

The printers are working as rapidly as possible upon this publication, and there is no doubt but it will be ready for delivery before the next issue of our JOURNAL. The number of copies of the "Prospectus," referred to in our August issue, which we have distributed has been very large and shows an unmistakable interest in the appearance of the forthcoming book.

Any reader of the JOURNAL who has not received a copy of this "Prospectus," and who is at all interested in the methods of physical therapy, should not fail to send at once for a copy and thus realize what a wealth of instruction is being prepared for the purchasers of this work.

The number of advance orders has been very gratifying and these will be filled first and in regular rotation according to the date of their reception.

AN EXCEPTIONAL OFFER

During the past few months we have been giving, according to an "Ad." in the pages of the JOURNAL, to both our new subscribers and those renewing, a year's subscription and a *first-class, guaranteed clinical, one-minute thermometer* for the price of the latter.

We have a few more of these excellent and reliable instruments on hand and will continue their distribution on the above terms as long as they last.

Send us \$1.50 and you will be doubly pleased with your investment.

DEPARTMENT OF THERAPEUTICS

HELONIAS DIOICA

By A. WALDO FORBUSH, M.D., SOMERVILLE, MASS.

COMMON names, blazing star, false unicorn, and devil's bit. The root is the part used in medicine. This plant is often confounded with *aletris farinosa* by root gatherers and perhaps also by the pharmacists. *Helonias* may be distinguished from *aletris* by the flowers being much more thickly set upon the spike, and the leaves less sharply pointed. *Helonias* contains no resinoid principle, but has a neutral constituent, name helonin, which is completely soluble in the stomach and is entirely devoid of irritation.

Physiological results.—In tonic doses *helonias* produces emetocatharsis, with pain characteristic of neuralgia, or enteralgia. There is similar pain in the stomach and reproductive organs. The mouth and throat become dry, with a bitter taste. If there is vomiting or purging we have the burning and dragging sensation in the lower part of the abdomen. In continued moderate large doses we have an irritable, quick, censorious temper even in the otherwise mild-tempered individual. There is a feeling as if a band was tightly wrapped about the head or temples. The brain functions are exercised slowly and somewhat dulled, with pain in the vertex. This pain is increased by looking steadily, for a length of time, at any one point. On stooping we have vertigo, or dizziness, with a feeling of uncertainty in movements.

Helonias acts mainly through the ganglionic chain of nerves, quite forcibly on the reproductive organs and glandular structures, and hardly less on the membranes of the stomach and kidneys. It acts less on the intestinal tract. On the renal tract it will produce a profuse, albuminous, light-colored urine, which is voided without the control of the person affected. This action is accompanied with pains in the lumbar region which are increased by motion.

Helonias will produce tenderness and swelling of the breasts in the female, an intense itching of the labiae, extending deep into the vagina and followed by menorrhagia of a persistent character. In the male there is increased sexual desire and a feeling of tenderness in the generative organs.

The *one condition* most prominent was that all symptoms were more troublesome after nightfall and were increased by motion.

Therapy.—No agent of the materia medica better deserves the name of uterine tonic than *helonias*. It is alike appropriate in the treatment of

pathological conditions calling for dissimilar properties, as for instance, amenorrhoea and menorrhagia. In amenorrhoea, helonias will be found most beneficial in cases arising from, or accompanied with, disordered condition of the digestive apparatus, and an anemic habit. It will be found useful in those cases for which iron is so frequently prescribed. It invigorates the appetite, promotes digestion, improves the quality and increases the quantity of the blood. Aside from this it has an especial influence over the organs of generation, independent of its general constitutional influence.

Helonias is an indispensable remedy for those who are acquainted with its peculiar virtues in wrongs of the female. It is not unlike senecio, and is closely allied to *lilium tigrinum*, *cimicifuga*, *caulophyllum*, pyrophosphate or phosphate of iron. It resembles quinia and strychnine in its tonic and stimulating tendency. When used along these lines it will greatly assist the therapeutic action of all closely indicated remedies.

Helonias has a distinctly restorative influence on the blood, enriching it by its influence upon the nutritive process. To my mind it supersedes in a marked degree the granted action of iron. Why this is so is not quite clear, but the fact has been proved, and by some careful observers fully demonstrated. Helonias does not seem equally beneficial in all forms of blood poverty. In the poisoning from and following diphtheritic debility helonias is of marked service, and in all like pathological conditions.

The action of helonias upon the renal and reproductive organs, particularly the uterus, is instructive and gratifying. It would seem that when the anemic condition is influenced from perversion of function in these parts, helonias is of specific merit. It restores normal uterine function, and dissolves toxines, urea, and other excrementitious products which pass through the kidney as a result. Relief from uterine congestion, and a more kindly stimulation toward the normal functional activity, by a method of medication without recourse to dilatation or curettage is a desideratum. Menstrual pains are one of the vivid wrongs of women, followed by a chain of most undesirable conditions — conditions demoralizing mentally and physically. When we have no decided organic change surgical measures are to be deplored. Physicians agree that surgical intervention, as a rule, causes subsequent and long-continued weakness. Of all the indicated remedies for uterine affections, helonias is recognized as one of the very best. From its great power here it has received the appellation of the "uterine tonic." It possesses curative influence in all atonic conditions from menorrhagia, amenorrhoea, dysmenorrhoea, up to habitual miscarriage and sterility. In menorrhagia, in congestive amenorrhoea, in prolapsus or retroversion, helonias will be found curative. In women of an anemic habit — the same train of symptoms presenting — helonias will prove as effective.

Sterility in the female and impotence in the male both come under the direct curative influence of the helonias when due to functional wrong.

Loss of desire without complete loss of reproductive power comes within the domain of this drug. When this condition co-exists with an abnormal secretion of urine, helonias will give marked relief.

The feature in every case where helonias is indicated is the amelioration of the symptoms produced by this discord of the mental or nervous faculties.

In the mental state arising from masturbation and sexual excesses — in either sex — the helonias will exert marked benefit. In the continuous mental depression following wakefulness, etc., helonias comes to us as the first thought of remedy. Many times *cimicifuga* could be added with benefit.

Patients suffering from *pruritus vulvæ* — the external labiæ becoming hot, swollen, erythematous, and burning — helonias in ten-drop doses, every hour to three hours, will quickly relieve. The same may be said regarding aphthous inflammation of the vagina, and like condition.

Use any local treatment desired with frequent doses of helonias, viz. five to ten drops of a *legitimate* fluid extract, or *reliable* tincture every hour to three hours.

In the depressing conditions of brain anemia caused by overdosing with the bromides — more especially the bromide of potassium — helonias is one of the best restoratives. Give five to twenty drops four times a day.

In cystic disorders with the dragging sensations in the extreme lower abdominal point, and an inclination to hold up or support the abdominal contents, the relief from the use of helonias is very satisfactory. The influence of helonias is that of a restorative tonic to the genito-urinary apparatus. In fact it is more than a conservative tonic or alterative. The renal pathological conditions especially calling for helonias can be named with some degree of distinctness — venous-paresis — a form of renal hyperaemia, or hyperstimulation that produces chronic irritation and resultant albuminuria. Here helonias will be found capable of not only relieving the mischief, but will go deeper in its work and restore the apparatus to a more normal working condition. When a patient calls attention to pain and describes a feeling of bags of hot water and heaviness in the region of the kidneys, and on examination of the urine we find the presence of albuminous, diabetic, or phosphatic elements of renal wrongs; the described condition is — to our mind — one of venous-paresis. With this atonic form of renal wrong the urine is not only increased in quantity, but contains an excess of urea. The urine is pale and acid, the appetite faulty, sleep non-refreshing, urinates frequently at night, palpitation on the slightest exertion, has a low-spirited, restless, debilitated general appearance. These subjective symptoms will be relieved by helonias either alone or in combination with any other indicated remedy. Helonias quickly overcomes the phosphatic diathesis and relieves urinary irritability, restoring tonicity to the parenchyma of the kidney and exerts a favorable influence on all urosis.

In dropsy, from renal wrongs, it has proved a remedy of great service, especially when used intercurrently with ampelopsis, apocynum, buchu, asparagus, cantharides, nitrate potassium and turpentine. The dose here should be the full toleration of the drug.

In the vomiting induced by the dropsy of Bright's disease, the helonias will generally relieve.

In chronic diarrhoea, complicated with renal or uterine diseases, helonias will prove of extra value.

Helonias can be placed in the group of glandular remedies from its influence upon the salivary glands, the pancreas, the mammary glands, the testicles, and the ovaries. In these conditions we have the stimulant and alterative action of the drug.

As a kindly acting tonic in convalescence from fevers, dysentery, and acute conditions in general, helonias should not be forgotten.

In gastric troubles I am safe in saying that there is no remedy surer in its action, when administered along the line of its direct indications, than helonias. In atonic dyspepsia — so-called — having its beginning in hyperstimulation and sympathetic to renal or uterine wrongs, denoted by loss of appetite, sense of fullness after eating, rumbling in bowels — often extreme in character — with colic, and depression of spirits, helonias will be found a remedy of importance.

Helonias is most useful in frequent or habitual abortion when due from local weakness or when from the slightest over exertion we have the premonitory symptoms.

It will aid cases which are influenced by emotional excitement, or from inflammatory conditions of the os or cervix. Caulophyllum and the viburnums are the opposite and correspond to an irritated uterus with great sensitiveness. Cimicifuga holds a place between these two extremes. Helonias is suitable for the feeble constitution where the nervous system becomes debilitated and is easily worn out. It is also a good working companion with pulsatilla and senecio, on general principles, when the indications call for either of these remedies.

For the dragging and bearing down sensation, common in cases of pelvic disorders in the female, helonias is most valuable given in five to twenty drop doses every hour or two.

In conclusion, while other indications might be presented, enough has been said to call attention to the importance of the remedy helonias.

Be careful in your selection of the preparation of the drug. The time has arrived when we, as physicians, should compel the pharmacist to assume his full responsibility in the honest treatment of the crude drug for our use. In that way only can we get indicated drug results.

Usual dosage: Helonias — a reliable tincture or fluid extract — gtts. ten to sixty; water, four ounces; sig. one teaspoonful, from one to four hours.

PNEUMONIA

BY A. L. CHASE, M.D., RANDOLPH, MASS.

IN looking over the various subjects to write about I have made up my mind that a short paper upon the old, much discussed disease pneumonia may be of as much practical interest and importance as anything that one can present.

I shall not attempt to discuss its causes and pathology, but to say a few words in reference to its diagnosis and treatment.

This disease is usually ushered in with a chill of more or less severity, a rise in temperature, followed by cough and in due time by the pathathogmonic expectoration, and is, according to the present accepted theory, a self-limited disease, therefore, we must leave out of our expectation the idea of curing it, but must content ourselves with guiding it to a favorable termination. We must remember that this disease attacks a most vital organ, the lungs, and that the impairment of their functions is of such a nature as to endanger the patient's life; we must not loose sight that through the respiratory function the blood takes up oxygen from the air and throws off carbonic acid, a poison that must be gotten rid of or our patient becomes slowly poisoned by its retention; that this is the direct cause of the rapid pulse and respiration and that this is nature's way of ridding the system of this poison, and it is imperative that we do not do anything to prevent this being done.

Now as to treatment, I think we should treat this on the same principle that we do all other diseases, taking into consideration the importance of the organ involved. If we get the full, bounding pulse, give *verat. vir.*; if the small, thready pulse, give *aconite*. If we get the flushed face, bright eyes, and contracted pupils, give *gelsemium*. For the harsh, rasping coughs I have yet to see any better expectorant than the tincture of *lobelia seed*; while in the less severe coughs I give *bryonia*, or sometimes *phosphorus* with, I believe, benefit to my patient. If I get a lowered vitality I give *strychnine*, 1-160 gr., three or four times a day with benefit, but I always feed my patients from the start and give them plenty of drinks. If they need stimulating, give whiskey, but milk and beef juice are the main foods I depend upon, and for external applications over the lungs I have yet to see anything better than a light flannel smeared with lard and freely sprinkled with powdered ginger and changed night and morning. I believe the great advantage of this is twofold, it is light and keeps the patient warm, and does not need constant care; and not having to be frequently changed prevents our patient from the exposure of those external applications that require constant changing, and another thing is they are light and our patient does not have the discomfort and depression of having to lift with each respiration the extra weight of some of the

heavier external applications, which to my mind is something which should not be overlooked. Suppose, for instance, our patient is breathing thirty times a minute, and the poultice or ice pack (which by the way I have never had the courage to use in a case of pneumonia) should weigh even one pound more than the ginger and lard, just think of the amount of weight that must be raised by the chest during one day's breathing; it would be thirty pounds each minute, 1,800 pounds each hour, and 43,200 pounds every day, an amount that of itself I believe enough to cause such a depressing effect as to be a very great factor in determining whether our patient recovers or succumbs to our treatment. Some patients will die of this disease and the mortality is very large, but after a patient is gone, when I look over the case I do not want to think I have been a contributory cause. I don't expect that I have said anything especially new in this paper, but I wanted to especially call your attention to this part of the treatment, the external applications.

I know there are physicians in this commonwealth that put their whole dependence in treating this disease in administering strychnine internally, ice packs externally, open windows, and even go so far as to remove the patient's flannels the first thing in an attack of this disease. I have followed the treatment of some of these cases, and have usually noticed that there was crape on the door before the end of the first week. It may be scientific, but I much prefer not to be so scientific, but to give my patient a fighting chance for his life.

Another thought I wish to impress is the growing tendency of our medical schools to teach the scientific and neglect the practical. They teach pupils all how people die, but not enough how the sick man can get well. They teach histology, bacteriology, embryology, and pathology, also the use of the microscope, all useful things, and I commend them for it, but not enough of the use of remedies. It is quite as much importance for the young physician to know how to treat Mrs. Smith's baby during its second summer while teething as to know how to perform a laparotomy, for the chances are that he will see one hundred of the former to his getting the chance to perform one operation for the latter. Therapeutics, in my opinion, is the one subject that should be more thoroughly taught than it is to-day in the majority of the medical schools.

PHYSICAL THERAPY**FIRST STEPS IN MEDICAL ELECTRICITY**

BY HERBERT MCINTOSH, A.M., M.D., BOSTON, MASS.

CHAPTER VIII**PART II****DISEASES OF THE SKIN**

(Continued from page 338)

HYPERTRICHOSIS OR SUPERFLUOUS HAIR:

(1) *Electrolysis*.—To remove superfluous hair any form of battery may be employed; the Grenet, gravity, Léclanche, or dry cell, if the commercial mains are not available. For this purpose, if a Grenet battery is employed from two to ten cells may be used, the larger number being rarely necessary. In any event an accurate milliamperemeter should always be introduced into the circuit. The current strength may run from one to six milliamperes, the higher strength being not usually necessary.

The positive pole should be attached to an electrode of cotton, spongopiline, or other material capable of absorbing fluid. It should be as large as the hand, and preferably saturated with an aqueous solution of common salt or sodium bicarbonate. Upon this the patient may place the hand during the process of epilation. The other pole should be attached to a needle holder containing a Hayes bulbous needle. The patient should recline on a table, and a good light, furnished by a forty candlepower electric lamp supported by an adjustable bracket, employed to give thorough illumination to the area which is to be operated upon. A magnifying glass is frequently useful. This may be supported upon the forehead or attached to the needle holder. Finally, an epilation forceps is needed.

Hairs are rooted at different distances below the surface, varying from one thirty-second to one fourth of an inch. It is interesting to study for a moment the structure of the investing membranes of the hair. These consist of two coats, the outer or dermic coat, and the inner or epidermic coat. The former is made up essentially of the two layers of the corium, namely, the papillary and reticulated layers. We are particularly concerned, however, with the inner or epidermic layer, because this frequently adheres to the hair when it is removed, and presents a white, silvery appearance. This consists of two *strata*, called respectively the

outer and the inner root sheath. The outer root sheath corresponds with the malpighian layer of the epidermis. The inner root sheath consists of the delicate cuticle next to the hair shaft, then of one or more layers, called Huxley's layer, and finally of another layer of horny cells, called Henley's layer.

The art of removing hair by electrolysis cannot be acquired by mere description of the technique employed, though this may give valuable assistance. How far to introduce the needle, how long to let it remain, how much frothing should be permitted, and how not to leave a scar are some of the problems which experience only can solve completely. Some operators can remove from sixty to one hundred hairs in an hour, though many patients cannot endure so long a treatment.

The question of reducing pain is an important one. For this many methods have been suggested. One operator uses a five per cent solution of carbolic acid, another removes four hairs at the angles of a quadrangle, and then covers the area with a ten per cent solution of cocaine, employing phoresis to drive in the anesthetic; another uses a four per cent solution of cocaine in guaiacol with phoresis; still others work without local anesthesia, directing the patient to remove the hand from the positive electrode when the needle is removed, and not replacing it until the needle is again introduced.

Each operator acquires his own technique after adopting and rejecting various procedures that have been presented to his attention.

(2) *X-ray*.—Superfluous hair may be successfully removed by the X-ray. For this purpose numerous exposures are necessary with great vigilance in order to avoid a destructive dermatitis. The danger connected with the treatment and the uncertainty as to the number of exposures necessary to effect the purpose in view tend to limit the usefulness of this method. However the tendency to recurrence diminishes the enthusiasm of both patient and operator.

CARCINOMA OF THE SKIN.—This takes several forms, viz. *Carcinoma lenticula*, which occurs frequently in the scar following an operation for mammary cancer; *carcinoma tuberosum*, which may be primary or secondary to cancer of other organs, and *carcinoma melanoides*, which results frequently from the malignant degeneration of a mole. These should all be promptly removed at their first appearance either by the electro-cautery or by electrolysis. In fact removal is so easy by these methods, and the danger from delay is so great that all excrescences, wherever appearing on the body, should be promptly extirpated. Moles in particular are liable to malignant degeneration.

EPITHELIOMA.—This occurs by preference near or at the juncture of the skin and mucous membrane, being seen oftenest on the face about the eyelids or nose, though it may appear also upon the nasal, buccal, vaginal, and rectal mucosae. The most familiar type of this disease is rodent

ulcer. This is benign at first and may exist for years without causing trouble.

Electro-cautery or electric needle. This disease may be readily cured in its incipency by the use of the electric cautery or electric needle, which should destroy enough of the contiguous tissue to prevent recurrence from undamaged cells.

Zinc phoresis.— This method was introduced by Leduc. An electrode saturated with a solution of zinc sulphate, twenty grains to the ounce, is attached to the positive pole and a current of two milliamperes per square centimeter is allowed to flow for about fifteen minutes. The results secured by this method have been highly satisfactory.

Radium.— A tube of radium may be applied to the surface of the ulcer for thirty or forty minutes. A reaction occurs in the neighborhood of the fourteenth day which subsides in about two weeks. Healing occurs during the latter period. Another application may be made in five or six weeks from the beginning of the treatment if deemed desirable.

X-ray.— The results of X-ray treatment in this disease have been found very satisfactory. A low tube should be used with an equivalent spark resistance of about three inches. The treatment may be continued until a well-marked erythema is produced, the surrounding parts being properly screened. The treatment should then be discontinued and the healing allowed to proceed. Circumstances must, however, determine the details of management in each case.

Concentrated light energy.— This may be used rather as an adjuvant to the X-ray, though Morris reports seven cures in thirteen cases of rodent ulcer.

ECZEMA.— *X-ray.* This has been found to be of striking value in certain types of eczema, particularly in rebellious types of chronic eczema, like squamous eczema of the hands. In exudative types also it has proved very efficacious. It should not supersede careful regimen and hygiene, but should be welcomed as a most useful weapon with which to attack this disease. A single irradiation is sometimes sufficient to produce a marked result.

Light energy.— A large number of cures have been reported from exposure to light energy. The electric arc has seemed to act most favorably, though Minin reports a case successfully treated with his blue lamp. Better results have been secured in the electric arc bath than with the concentrated light of the electric arc. This would indicate that the systemic conditions underlying the disorder were favorably affected by the complete exposure of the body.

FURUNCLE OR BOIL.— This may be aborted by the application of the direct current as already explained under the head of carbuncle.

X-ray.— Exposure to the X-ray, as in acne, has been found of much value.

HERPES.—*Herpes simplex* may be aborted by the application of a mild direct current by means of a moistened electrode over the affected area.

Herpes zoster.—The severe neuralgic pains characterizing herpes zoster have been relieved by applying the moistened electrode over the course of the intercostal nerve.

Ultra violet light.—This should be applied for its analgesic effect.

ICTHYOSIS.—*X-ray.*—This has been regarded as a most intractable disease. Yet Leduc has reported the case of a boy of twelve afflicted from infancy with this disease, who had tried every form of treatment without success, but was completely cured by four exposures to the X-ray.

LENTIGO OR FRECKLES.—These may be touched with a needle attached to the negative pole. A slight electrolytic effect is thus produced, sufficient to remove the pigment or destroy the pigment-producing layer of the epidermis. Care should be taken to avoid scarring. Local applications by means of a moistened electrode are useful.

High frequency.—The high frequency discharge from a fine metallic point by judicious employment will affect favorable results.

LUPUS ERYTHEMATOSUS.—This is a most refractory disease. Morris and Doré, however, report two cases cured by light treatment. Upon the whole the results obtained by the use of light energy have been rather more successful than those resulting from the use of the X-ray. There is with all of these methods, including high frequency applications, temporary improvement, but the ultimate results have been discouraging.

LUPUS VULGARIS.—*Light Energy.*—The results of Finsen's work are well understood. According to his technique the time necessary for a cure of lupus is from four and one half to six months. The cosmetic results of light treatment are excellent. Healing takes place without scar tissue.

X-ray.—This form of energy rivals light in the brilliant results which follow its use. Its first effect seems to be more rapid than that produced by light. Its later action upon deep-seated nodules is slow. The X-ray seems to be more effective when the mucous membrane is involved than light, and when the nostrils are affected, the X-ray is used from necessity. The two methods may be combined where extensive surfaces are involved, the X-ray being used as a preliminary treatment.

High frequency applications.—These applications have been found advantageous when administered (a) by the brush effleuve, owing to some extent to the large quantity of ultra violet rays which it contains; (b) by vacuum tube electrodes, and (c) by general electrization as supplied by the auto-condensation couch.

NAEVUS LIPOMATODES.—In this type, in which there is fatty and connective tissue in the pigmented area, the electro-cautery wire may be used with success, followed, if necessary, by electrolysis.

NAEVUS PIGMENTOSUS OR PIGMENTARY MOLE.—If accompanied by hypertrophy of the skin, this may be removed by the method described under angioma telangiectasis. If without hypertrophy, it may be destroyed by multiple punctures, as described under the head of angioma naevus vasculosus.

High Frequency Discharges from a metallic point may also be used to advantage in the removal of pigmentary deposits. This method has the advantage of perfect control, and the operator soon learns by experience how long the discharge should be permitted to flow to accomplish the desired end.

NAEVUS PILOSUS OR HAIRY MOLE.—In this condition all that is needed in many cases is the removal of the hairs in order to destroy the pigmentary deposit. When this result has not been attained the mole may be removed by the methods already described.

MILIUM.—*Electrolysis.*—These small, rounded, whitish masses containing sebaceous material are easily and successfully removed by electrolysis. The electric current effectually cauterizes the cavity and prevents recurrence of the disease.

MOLLUSCUM CONTAGIOSUM.—These tumors, much larger than the preceding, and containing a soft, whitish, greasy, and semi-solid substance, are readily removed and successfully treated by electrolysis.

MOLLUSCUM FIBROMA.—This disease, rare in this country, and characterized by hard, nodular, and circumscribed tumors composed of connective tissue situated in the normal skin, may be removed, when deemed desirable, by means of the electro-cautery loop. This treatment is especially suited to the pedunculated variety, though it is applicable also to sessile fibromata. Where the growths are small they may be removed by electrolysis.

MORPHEA.—This is a form of scleroderma which is rare. Localized treatment with the direct current in conjunction with massage and drug medication is recommended by Hardaway.

PRURITUS.—*X-ray.*—The X-ray is found most useful in this neurosis, a few irradiations sufficing to relieve the annoying and sometimes intolerable itching and burning which accompany it.

High Frequency Effluve.—Only less serviceable, perhaps, is the high frequency effluve, or glass vacuum electrode application.

Radium.—Perhaps the most brilliant results in the treatment of this disease have been obtained by the use of radium.

Direct, induced, and static currents have all been used successfully in this disorder.

PSORIASIS.—*X-ray.*—This obstinate and rebellious disease yields, in many cases, to X-ray irradiations, more especially when combined with arc light treatment.

Arc Light.—This should be administered on alternate days. The

author combines the X-ray and arc light treatment with a strictly vegetable diet, believing that animal food is unfavorable to recovery and tends to relapses.

Figure 16* represents a young woman, age thirty, afflicted with generalized psoriasis. Three months' treatment in a hospital by the use of drugs had aggravated her trouble. Daily treatments for a similar period at the author's office, with arc light and X-ray exposures occurring every other day, produced the condition as shown in Figure 17.* Dr. Cleaves regards light energy as almost a specific in this disease.

PEMPHIGUS.—Arc Light.—This disease is exceedingly refractory. Yet Dr. Max Heims reports two cases of chronic pemphigus cured by blue light from an arc lamp.

Ultra violet light.—Similarly a case of pemphigus neonatorum is reported by Dr. Cleaves which yielded to the ultra violet light.

PURPURA.—Induced current.—Shand, of Glasgow, has reported a case in which the subcutaneous hemorrhages characteristic of this disease ceased after repeated applications of this current.

SARCOMA.—This frequently originates from the degeneration of a pigmentary naevus or mole. It is also secondary to sarcoma of other organs. The same treatment may be employed as is described under epithelioma.

SCROFULODERMA.—This term includes a number of diseases which are either tuberculous or syphilitic. The term "scrofula" was formerly applied to them.

The type with which we are most familiar in this country is *scrofuloderma ulcerosum* in which hard, painless movable masses usually undergo softening with the eventual production of cold abscesses. Such conditions are markedly benefited by X-ray irradiations and the high frequency effluve. Theoretically any light containing a high proportion of ultra violet rays applied by means of a compressor in order to secure anemia of the tissues should likewise be beneficial, for reasons explained in Chapter XXII, on the "Physiology of Light Energy."

Concentrated energy of the electric light.—The X-ray may be alternated with the arc light or followed by it.

SYPHILIS OF THE SKIN.—Mercury phoresis.—Where the diagnosis of syphilis has been made, the initial lesion may be successfully treated by phoresis, a soluble mercurial salt being carried into the tissues by the electric current. This method is equally applicable to the papular, tubercular, and gummatous types of the secondary stage of syphilis. Constitutional treatment is, of course, not to be neglected. None the less, the speedy removal of a syphiloderm and the incidental and preliminary alteration of its characteristic color are a source of great satisfaction to the patient.

TATTOO MARKS.—These may be speedily removed by electrolysis.

* These illustrations will be found in "Practical Handbook of Medical Electricity."

The needle attached to the negative pole excites so much inflammation in the pigmented tissues that they throw off the foreign material deposited there.

ULCERS.— These may be stimulated by the application of an electro-cautery to the indurated edges and also to the surface. The direct current may be employed to carry zinc or copper ions into the ulcer. The effect is to stimulate the ulcer to the production of healthy granulations.

WARTS.— These may be treated like naevi, as already described under that heading.

Phoresis.— Ions of magnesium may be carried into these little growths by phoresis. A pad of lint or blotting paper may be saturated with a five per cent solution of magnesium sulphate, and the current introduced by means of a platinum or carbon electrode attached to the positive pole. The result is highly satisfactory.

WOUNDS.— The existence of small wounds upon the surface of the hand may be determined by immersing it in a basin of water containing one of the poles carrying a direct current. The location of the puncture or wound can be readily determined by a smarting and burning sensation at the point of injury.

They are slaves who fear to speak
For the fallen and the weak;
They are slaves who will not choose
Hatred, scoffing, and abuse,
Rather than in silence shrink
From the truth they needs must think.
They are slaves who dare not be
In the right with two or three.— LOWELL.

DEPARTMENT OF DIETETICS

SUPERIOR FIRELESS COOKERY

BY FRANCES A. SEELY

THE foundation of dietetics is thorough and palatable cookery. Without it, the best of foods must fall short of expected results. Too often the deficiency in this requisite baffles, if it does not completely frustrate, the effort to fortify against a crisis or restore strength during convalescence.

The chief causes of deficient cookery are careless measurement of ingredients and the fierce sustained heats of ordinary cooking apparatus. While extra care may avoid trouble from the first cause, only unusual skill and experience can triumph uniformly over the second. The JOURNAL OF THERAPEUTICS AND DIETETICS is, therefore, well within its scope in directing attention to a system of cookery which requires only the capacity to measure accurately, in order to produce incomparable results with the precision of laboratory reactions.

Of such is superior fireless cookery. Its recipes are as exact as chemical formulæ, its products notable for tenderness, thoroughness of cooking, and delicacy of flavor, all qualities attainable by the most inexperienced, if the simple processes are correctly performed. And therein lies the value of this art to the physician, the very best of cookery is placed within the reach of all and proper dietetics made universally feasible.

The term "fireless" is misleading, as the method is in reality cooking by stored and retained heat. The heat may be stored in the food by preliminary boiling, or in adjacent substances and then radiated to the food. The first process — cooking by retained heat — was developed by the Norwegians. Kettles filled with partially boiled food were placed between feather beds or in nests of hay formed in barrels. At a later hour the food was removed, still hot and thoroughly cooked. The second process, cooking by radiated heat, was common to all primitive peoples and is in use today among the Maoris, South Sea Islanders, and Gypsies, with whom the cooking pit, with hot stones at the bottom, is a favorite expedient. The New England clam bake is a survival of this device in our own midst. The narratives of the early Jesuit missionaries give an interesting instance of the ingenuity of the Indians in employing a fireless method to overcome the difficulty of boiling in kettles which would burn if placed over fire. Flints were heated red hot and dropped into the water until cooking was sufficiently accomplished.

Both principles of fireless cookery are employed in the art to-day. Cooking by retained heat is applied to boiling processes and cooking by radiated heat to roasting and baking.

Cooking by retained heat relies upon the fact that less than boiling temperature will suffice to accomplish cooking if time is allowed for the gentler heat to thoroughly permeate the food. Cooking consists in the main in coagulating albumens and breaking up starch cells. Both operations begin at about 140° Fahrenheit. When, therefore, food at the boiling point is allowed to cool, cooking does not cease entirely until the temperature falls to 140°. If the food is placed in an insulated receptacle, the period required to reach this limit will be greatly lengthened and several hours of effective cooking provided without further application of heat.

The writer experimented on many foods at great length to determine the exact requirements of perfect results — complete hydration of starches — full re-hydration of dried and evaporated fruits — tender coagulation of albumens — proper softening of vegetable structures and the development and retention of all distinctive flavors. The results in every instance excelled those offered by the "hay box" and its commercial imitations, but required a cooker constructed entirely of non-absorbent surfaces with steam-tight, seamless cover, so that all steam from the kettles was retained and condensed within the cooker. No kettle is more than relatively steam tight, and the absence of condensation in cookers with cushions or felt linings is merely evidence of absorption of steam by these features and loss of heat. The standard of heat retention must also be high, not less than 140° at the end of eight hours for cereals and starchy foods and at the end of twelve hours for large meats. These temperatures should also be obtainable in the winter season. Less than this standard means only partial expansion of cereals and starchy foods, inferior dried and evaporated fruits, reheating of the cereal for breakfast and twice cooking of solid meats.

What may be done with cereals is illustrated by cornmeal mush. This meal becomes completely hydrated and remains firm when six parts of water are incorporated with one part meal. Practically a new food is thus created of indescribable delicacy, which is palatable to all. Each grain remains distinct to the eye, although almost impalpable to the tongue, the whole resembling a dessert in texture and appearance. The strongest evidence of transformation is the ready acceptance of this dish as a daily ration by foreign-born inmates of institutions using the cooker. Every race is represented, including survivors of those who threw corn meal away during the famine in Ireland. The economy of this greatest of foods is indicated in one instance by the continued feeding of two hundred and twenty-five children and twenty-five attendants with 7 quarts (8½ pounds) cornmeal, ¾ pound sugar and 42 quarts water, making 12 gallons of delicious cooked food at a cost of only 20 cents for materials.

Nutrition in all such cases is excellent, whence it may be deduced that the incorporation of the additional water with the meal makes every particle of nutrient capable of assimilation. The economy due to the increased bulk of food produced from the unit of raw material is, therefore, real and not merely apparent.

The secret of the success of this method with many foods is the shortening of the usual boiling period, during which delicate structures are disrupted and many essential elements dissipated in steam, and the subsequent prolonged subjection to a moist cooking heat below the boiling point. Macaroni and spaghetti are particularly benefited. The pipes swell beyond recognition and possess the desirable quality of remaining palatable and tender when cold, many hours after removal from the cooker. The stove-cooked variety, on the other hand, becomes tough in a few hours. Rice is another food which comes into its own with the advent of the fireless cooker. Every grain is distinct and fully expanded, firm, yet tender.

Dried and evaporated fruits deserve whole columns to set forth the desirable qualities of each variety, as they are revealed by the gentle treatment of the cooker. The fibers become distended to their former proportions with a juicy liquor, rich with the flavor of the fruit in its prime. Nothing is broken and the full, clear sections delight the eye with their beautiful color and texture. One pound of fruit soaked in water and boiled with one half pound sugar for from two to five minutes, then eight hours in the cooker, yields two and one fourth quarts of delicious cooked fruit. Dried fruits abound at reasonable prices during all seasons of the year and it hardly seems worth while to preserve the fresh when so delicious a food can be prepared at any moment with this trifling expenditure of money and effort.

Physicians are busy men, but quick to appreciate the advantages of superior fireless cookery. The obvious improvement in nutrition and economy of effort in the preparation of the foods appeals to them instantly.

Particularly grateful in the physician's home is the facility for keeping foods warm and palatable for one whose hours must be open to interruption and the commendations from the many members of the profession who have been benefited is a source of lasting pleasure to the writer.

(To be continued)

The very difficulties of life, of which we are so apt to complain, are converted into the means of that discipline, that self-improvement which is the great end of life. Let a man's present desires be met and satisfied without any exertion on his part, and he would be content to remain as he is. Progress is the child of struggle, and struggle is the child of difficulty.

— JAMES WALKER.

DRINKING WATER*

Natural Purification of Water.—River waters are sometimes dark colored because of large amounts of dissolved organic matter, but in contact with the sun and air they gradually undergo natural purification, and organic matter is oxidized. However, absolute reliance cannot be placed upon natural purification of a bad water, as the objectionable organisms often have great resistive power. There is no perfectly pure water except that prepared in the chemical laboratory by distillation. All natural waters come in contact with the soil and air, and necessarily contain impurities proportional to the extent of their contamination.

Water in Relation to Health.—There are many diseases, of which typhoid is a type, that are distinctly waterborn. The typhoid bacilli, present in countless numbers in the feces of persons suffering or convalescent from typhoid fever, find their way into streams, lakes, and wells. They retain their vitality, and when they enter the digestive tract of an individual, rapidly increase in numbers. Numerous disastrous outbreaks of typhoid fever have been traced to contamination of water. Coupled with the sanitary improvement of a city's water supply there is a diminution of typhoid fever cases and a noticeable lowering of the death rate. Many cities and villages are dependent for their water upon rivers and lakes into which surface drainage finds its way, with all contaminating substances. Mechanical sedimentation and filtration greatly improve waters of this class, but do not necessarily render them entirely pure. Compounds of iron and aluminum are sometimes added in small amounts, under chemical supervision, to such waters to precipitate the organic impurities. Spring waters are not entirely above suspicion, as oftentimes the soil through which they flow is highly polluted. All water of doubtful purity should be boiled, and there are but few natural waters of undoubted purity. There is no such thing as absolutely pure water in a state of nature. The mountain streams perhaps approach nearest to it where there are no humans to pollute the banks; but then there are always the beasts and birds, and they, too, are subject to disease. There are very few waters that at some time of the year and under some conditions are not contaminated with disease-producing organisms. No matter how carefully guarded are the banks of lakes furnishing the water supply of cities, more or less objectionable matter will get in. In seasons of heavy rains, large amounts of surface water enter the lakes, carrying along the filth gathered from many acres of land drained by the streams entering the lakes. Some of the most serious outbreaks of typhoid fever have come from temporary contamination of ordinarily fairly good drinking water. It is just as important that water should be boiled as that food should be cooked. One of the objects of cooking is to destroy the injurious bacteria, and

*Extract from "Human Foods," by Snyder; published by The Macmillan Co.

they are frequently more numerous in the drinking water than in the food.

The argument is sometimes advanced that the mineral matter present in water is needed for the construction of the bone and other tissues of the body, and that distilled water fails to supply the necessary mineral matter. This is an erroneous assumption, as the mineral matter in the food is more than sufficient for this purpose. When water is highly charged with mineral salts, additional work for their elimination is called for on the part of the organs of excretion, particularly the kidneys; and furthermore, water nearly saturated with minerals cannot exert its full solvent action.

In discussing the immediate benefits resulting from improvement of water, Fuertes says: "Immediately after the change to the 'four mile intake' at Chicago, in 1893, there was a great reduction in typhoid. Lawrence, Mass., showed a great improvement with the setting of the filters in operation in September, 1893; fully half the deaths in 1894 were among persons known to have used the unfiltered canal water. The conclusion is warranted that for the efficient control of the death rate from typhoid fever it is necessary to have efficient sewerage and drainage, proper methods of living, and pure water. The reason why our large cities, which are all provided with sewerage, have such high death rates is therefore without doubt their continuance of the filthy practice of supplying drinking water which carries in solution the washings from farms, from the streets, from privies, from pigpens, and the sewage of cities. . . . And also we should recognize the importance of flies and other winged insects and birds which feed on offal as carriers of bacteria of specific diseases from points of infection to the watersheds, and the consequent washing of newly infected matter into our drinking water by rains."

There is a very close relationship between the surface water and that of shallow wells. A shallow well is simply a reservoir for surface water accumulations. It is stated that, when an improved system of drainage was introduced into a part of London, many of the shallow wells became dry, indicating the source from which they received their supply. Direct subterranean connection between cesspools and wells is often traced in the following way: A small amount of lithium, which gives a distinct flame reaction, and a minute trace of which can be detected with the spectro-scope, is placed in the cesspool, and after a short time a lithium reaction is secured from the well water.

Rain water is relied upon in some localities for drinking purposes. That collected in cities and in the vicinity of barns and dwellings contain appreciable amounts of organic impurities. The brown color is due to the impurities, ammonium carbonate being one of these. There are also traces of nitrates and nitrates obtained from the air. When used for drinking, rain water should be boiled.

Boiling Water.— In order to destroy the bacteria that may be in drinking water, it is not sufficient to heat the water or merely let it come to a boil. It has been found that if water is only partially sterilized and then cooled in the open air, the bacteria develop more rapidly than if the water had not been heated at all. It should boil vigorously five to ten minutes; cholera and typhoid bacteria succumb in five minutes or less. Care should be taken in cooling that the water is not exposed to dust particles from the air, nor placed in open vessels in a dirty refrigerator. It should be kept in perfectly clean, tight-stoppered bottles. These bottles should be frequently scalded. Great reliance may be placed upon this method of water purification when properly carried out.

Ice.— The purity of the ice supply is also of much importance. While freezing reduces the number of organisms and lessens their vitality, it does not make an impure water absolutely wholesome. The way, too, in which ice is often handled and stored subjects it to contamination, and foods which are placed in direct contact with it mechanically absorb the impurities which it contains. For cooling water, ice should be placed around it rather than in it. Diseases have frequently been traced to impure ice. The only absolutely pure ice is that made from distilled water.

Mineral Waters.— When water is charged with carbonic acid gas under pressure, carbonated water results, and when minerals, as salts of sodium, potassium, or lithium are added, artificial mineral waters are produced. Natural mineral waters are placed on the market to some extent, but most mineral waters are artificial products, and they are sometimes prepared from water of low sanitary character. Mineral waters should not be used extensively except under medical direction, as many have pronounced medicinal properties. Some of the constituents are bicarbonates of sodium, potassium, and lithium; sulphates of magnesium (Epsom salts) and calcium, and chloride of sodium. The sweetened mineral waters, as lemonade, orangeade, ginger ale, and beer, contain sugar and organic acids, as citric and tartaric, and are flavored with natural or artificial products. Most of them are prepared without either fruit or ginger. Natural mineral waters used under the direction of a physician are often beneficial in cases of chronic digestion, disorders, or other diseases.

Doing nothing for others is the undoing of one's self. We must be purposely kind and generous, or we miss the best part of existence. The heart that goes out of itself gets large and full of joy. This is the great secret of the inner life. We do ourselves the most good doing something for others.— HORACE MANN.

THE MEDICAL ROUND TABLE

CHRONIC DISEASES AND THEIR TREATMENT

EDITOR OF THE JOURNAL OF THERAPEUTICS AND DIETETICS

DR. HOWES, in the JOURNAL OF THERAPEUTICS AND DIETETICS for July, has opened one of the most important topics in the entire range of medical science, and one of the most neglected. Chronic diseases form the bulk of our practice, they comprise the cases that supply most of our income, and they give us what is so sadly lacking in dealing with acute maladies, time for full consideration and study. But for this very reason last mentioned they are slurred over, and we devote ourselves to the acute emergencies that demand instant action.

Taking Dr. Howes's excellent chapter as an introduction, I shall give some attention to the principles underlying the treatment of chronic maladies in general. Our study of each case seeks to ascertain the causes of the disease, its results, the obstacles to recovery, and the possibility of removing these. We cannot expect to rebuild cellular structure once destroyed, but we can still do much if we proceed on a definite plan, fully cognizant of the situation.

The first indication is the removal of the causes that set the disease process in motion and tend to keep it going. Here we go into the habits of the patient, his heredity, his environment. We need not fear to push our investigations too far — we cannot know too much of our case. Hinging on this is our second indication — to prevent a flood of toxins from retained feces poisoning the blood. This is largely a causal factor, but furnishing a pure and sufficient supply of nutritive blood to the suffering tissues is a separate and most essential indication. Clear out the bowels, and do it thoroughly. No single cause has contributed to Abbott's hold on the doctor so much as his recognition of the vast importance of this principle, which every real doctor knows to be fundamental. Knowing him to be right in this we are disposed to credit him with possibly being right in others, at least to the extent of giving his ideas a trial. And he is certainly right in another — that we don't have to take his or anybody else's word for anything since we are in the position of judging for ourselves.

I like to meet a brother doctor on equal grounds; to discuss with him, and say — Abbott, you're dead wrong — if I think so. When one of these

very superior chaps comes at me with his arbitrary teachings from a position of toplofty superiority, I quit.

We stop the active causes of disease, see that the nourishing fluids are pure and satisfactory, by that careful, intelligent regulation of the diet which your journal specifically advocates. Then we have to get rid of the debris of the disease,—see that the skin and kidneys are doing their duty, for if the drainage is blocked we will accomplish little.

Eclecticism, and eclecticism alone, has given us the means of so stimulating the eliminants as to safely carry the “dirt” out of the body. The metallic absorbents, mercury and iodine, are unsuitable for long-continued use, as being too destructive to the normal body cells. We have a powerful and safe list of remedies for this purpose in stillingin, phytolaccin, lobelin, and veratrine. I am partial to the latter, as it acts on all the eliminants and may be given with benefit and impunity for years if necessary. Its general effect is really tonic, as it only acts on matter that should be cast out, if given in the moderate doses proper to these cases. I usually give an adult 1-134 grain three to six times a day in chronic cases and keep it up indefinitely. Stillingin I keep for syphilitic cases, phytolaccin for fat people and those showing enlargements of the glands, while lobelin is best for the subacute forms and for acute exacerbations.

The next step is to increase the recuperative forces of the body. If we are dealing with an infection we can do something by giving nuclein and increasing leucocytosis; but this comes under the head of combating the causes of the disease. More frequently we have nothing of the sort before us,—specific infections demand specific treatment. But I believe we can enhance the restorative powers of the tissues by direct medication, and here I use hydrastis. I have to disagree with Abbott here, for he advises the separate alkaloids, berberine to contract and tonify relaxed connective tissues, and hydrastine to contract the terminal arterioles and capillaries. Granting both, for I have tried them and found the statements true, I believe that as a general toner of the tissues in many chronic maladies we will get better results from hydrastin, in which all the useful elements of the plant are concentrated. Of this I give $\frac{1}{2}$ grain five to ten times a day, preferring the small and frequent dosage as affording better tonic results.

Another useful remedy here is sanguinarine, and this I always give to thin, anemic, amenorrhic women. It is one of the best vitalizers in existence. Don't overdo it. Give 1-67 grain every two or three hours, and never enough to cause nausea. Still another drug should possibly be placed with these, and that is populin. I am inclined to rank it as also a specific tissue or cell tonic, but would like to hear what Dr. French says about this point.

There is a nervous element often present, and the skilled specialist in therapeutics will know which cases need anemonin, cypripedin, or scutellarin; and sometimes I get one that will not respond until she gets passiflora.

The indications specially presented by each case will be met by the doctor who knows how to see, and knows his drugs; but cannot be discussed here, where I already see the editor's blue pencil hovering over this paper.

HENRY LASKER, M.D.,
Chicago, Ill.

CREOSOTE IN PNEUMONIA

EDITOR JOURNAL OF THERAPEUTICS AND DIETETICS:

In the "Round Table" of February Dr. Robert Gray contends for, fractional doses at short intervals. Concerning the doctrine as applied to the class of remedies with which he illustrates febrifuges, I have no contention to make, though I have, for reasons not necessary to name, but seldom used the plan. These remedies I class as symptomatic, to be used according to the symptoms, no matter from what cause originating.

With regard to specifics, such as act on the *materies morbi*, by destroying or inhibiting the reproduction of the germs, large doses seem to be more effective. When we have but a few hours in which to keep off a chill, we give the quinine freely and rapidly, to anticipate the coming chill and not to control present symptoms.

So, with diphtheria, we give full doses of antitoxin to check as soon as practicable the destructive effects of the Klebs-Loeffer bacillus, other medicines being used as needed for present symptoms.

So, believing that creosote and its derivatives were destructive or inhibitive to the pneumococcus, I have for more than fifteen years prescribed some creosote preparation in every case of pneumonia. Experience and microscopic observation have taught me that few cases of pure pneumococcic pneumonia fail to respond promptly.

In mixed infections, streptococcus, staphylococcus, etc., the effect of creosote is less marked or entirely negative. In these cases, in accord with the writings of Solis-Cohen, Bjorckman, and Stachowski, I have been, with much satisfaction, using collargolum, generally associated (not combined), with a creosote preparation.

An illustration: Mrs. F., July 12, 1909, was taken with a chill at 3 A.M. At 10 was delivered of a child, which I could induce to breathe only by putting in a cool bath, its senses being stupified by a high fever. At 6 P.M. I recognized that I had to deal with a case of pleuropneumonia, and began at once giving creosote carbonate (creosotal) in $26\frac{2}{3}$ grain doses, every two hours for the first three doses, then every three hours.

The next morning in addition she got collargolum, grains three, in *solution* on *empty stomach*, three times a day. On the 13th and 14th temperature ranged from 102° to 104°, being moderated by tepid sponging, the body being exposed to the atmosphere, then ranging in temperature

from 80° to 100° Fahrenheit. On the morning of the 15th I found her temperature slightly above normal. There was no subsequent rise, and the patient was dismissed in three or four days. No other medicine was given except a laxative as needed, and later 1-45 grain of strychnina sul. was added to each dose of the creosote carbonate.

I. L. VAN ZANDT, M.D.,
Fort Worth, Texas.

For a number of years we have been in the habit of following Van Zandt's teachings, to the extent of using some preparation of creosote in most cases of pneumonia; and we are free to say that we believe his claims are justified by the results. Have our readers used it? If not, we advise them to try it. Should any of you wish to know more of the details of his method, no doubt Dr. Van Zandt will be glad to describe it more fully.

J. M. F.

CHIONANTHUS

EDITOR JOURNAL OF THERAPEUTICS AND DIETETICS:

The "Eclectic League for Drug Research" reports on drug "Chionanthus" as follows:

Apparently the only field of action of chionanthus is the digestive tract, especially of the liver. Its ideal case seems to be that of sub-acute states accompanying catarrhal and congestive conditions of the bile-secreting tissues. With this may be a long train of sick headache, eructations of gas, nausea or vomiting, neuralgia pains or direct pains from the congested liver, constipation, clay-colored stools, jaundice, etc.

Secondarily, the kidneys may suffer considerably and always the specific gravity and color are increased. Its common indications of clay-colored stools, high-colored urine, pain in the region of the liver, and jaundice with loss of appetite, etc., are well known. As a digestive stimulant and tonic under these indications, it will not fail, providing the trouble is not actual organic obstruction to the outflow of the bile. It is one of the kindest and most important remedies on the digestive organs that we have.

In some cases of diabetes its action is marked. Many cases have been to date reported as to its usefulness.

In the October report of the American Materia Medica Club, Dr. R. B. Taylor, of Ohio, speaks of a case where it was given with effect.

I myself have used it a great many times when the urine was suspicious. In fact, have come to look upon the high specific gravity and the "suspicion" of sugar as a pronounced indication for chionanthus.

Dr. J. E. G. Waddington, Detroit, reports an interesting case of diabetes mellitus as follows:

"Ten minims of specific chionanthus, gradually increased to twenty, every three hours, added ten pounds weight to an eighty-five pound girl, sixteen years old, with diabetes mellitus of one year duration, given up to die by the family physician. It reduced the urine from eight pints daily to three. Nothing else was given." When she seemed to remain *in statu quo* other drugs were given as indicated. He says: "She is holding her own. She was very constipated, stools light and clayey, dulness over liver. She is now getting only ten to fifteen minims three hours after eating."

While it may not be a "cure" for diabetes, it will undoubtedly work wonders in cases where the wrong was primarily excited or is augmented by the wrong in the liver.

Reports for September 1, thuja; October 1, geranium; November 1, Rhus tox. Reports solicited.

W. LEMING, M.D.,
Lexington, Ky.

The doors of your soul are open on others and theirs on you. . . .
Simply to be in this world, whatever you are, is to exert an influence too,
compared with which mere language and persuasion are feeble.

—HORACE BUSHNELL.

We know not half the power for good or ill
Our daily lives possess o'er one another,
A careless word may help a soul to kill,
Or by one look we may redeem a brother.

'Tis not the great things that we do or say,
But idle words forgot as soon as spoken;
And little thoughtless deeds of every day
Are stumbling blocks on which the weak are broken.

THERAPEUTIC NUGGETS

PEROXIDE OF HYDROGEN.— If \mathfrak{z} ij-iv \mathfrak{z} of the peroxide of hydrogen be added to each quart of the drinking water given to patients suffering from infectious diseases, there will be no taste to the water, but its influence as an oxidizing and disinfecting agent, if persistently administered, will be of much benefit in rendering the disease more mild and of shorter duration.

SCARLET FEVER.— *Rhus toxicodendron* is indicated in this disease by the dark red or livid appearance of the skin, especially if the mucous membranes of the mouth are red and the tongue is red and glazed or narrow, pointed, and dark with a brown coat, offensive breath, offensive discharges, and rapidly failing vitality.

ATONIC DYSPEPSIA.— Myrrh is a good remedy in atonic dyspepsia, with flatulence and frequent mucous discharges from the bowels. Give it with some of the simple bitters, as myrrh and gentian, equal parts, in doses of from five to twenty drops. If nervous symptoms are prominent add valerian so as to give equal parts of the three.

SALIX NIGRA AMENTS is a valuable sedative and tonic to the reproductive organs. Dose gtt. x-xx three or four times a day.

STICTA.— This remedy acts upon the base of the brain, relieving irritation. The pneumogastric and the parts which it supplies are markedly affected by it. It is indicated when there is pain in the occipital region and between the scapulæ, with cough, or with cough and pain in the respiratory muscles. Use it in rheumatism with the pain located as above mentioned, and particularly if persistent.

STAPHISAGRIA.— This remedy has a marked influence on the nervous system and sometimes relieves neuralgia of the facial or superficial nerves of the neck. It is a good agent in amenorrhea and in some cases of dysmenorrhea, as when the menses come at greatly prolonged intervals, and are unduly extended in duration.

CORYZA.— In active coryza the frequent inhalations of menthol will often quickly terminate all of the unpleasant symptoms.

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Preceding that time, the word “Specific” carried with it the thought of a *remedy*, infallibly capable of curing a disease, as for example, a *Specific for Consumption*, or a *Specific for Cancer*. A “Specific” in medicine was therefore a substance that exerted “a peculiar influence over any part of the body.” *Webster*. Dr. Scudder referred to this feature as follows :

“Many persons are in error in regard to *our* use of the term Specific. They think of a Specific Medicine as one that will cure all cases of a certain disease, according to our present nosology, as pneumonitis, dysentery, diarrhoea, albuminaria, phthisis, etc.; and a person looking at the subject in this light, and guided by his experience in the use of remedies, would say there are no specifics.

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Dr. Scudder thus restricted the word “*Specific*” to the direct effect produced by a definite medicine regarding symptoms that may accompany many disease conditions, and not to a remedy to be used, infallibly, in the treatment of a single disease name.

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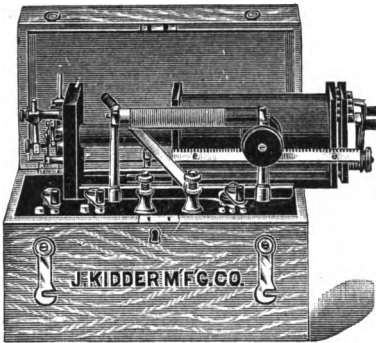
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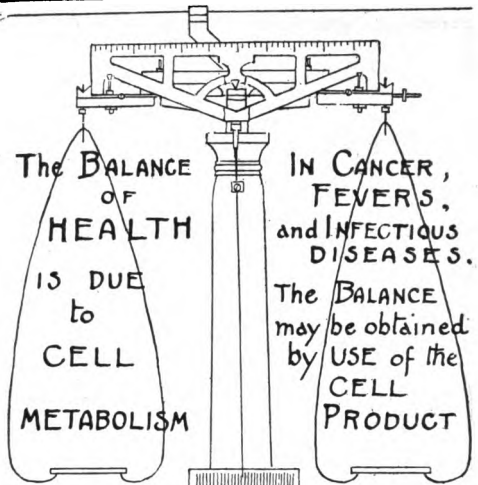
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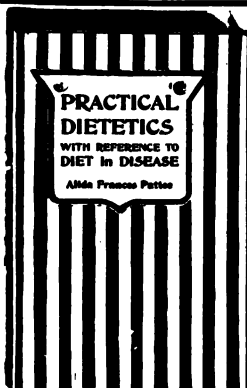
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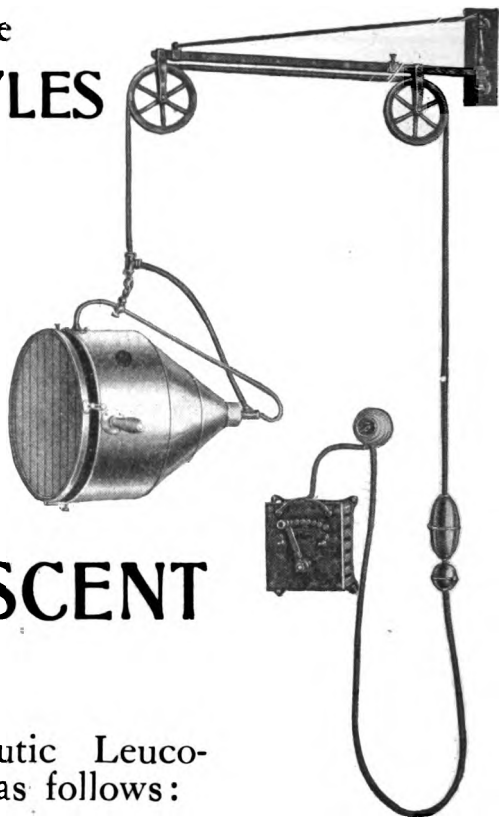


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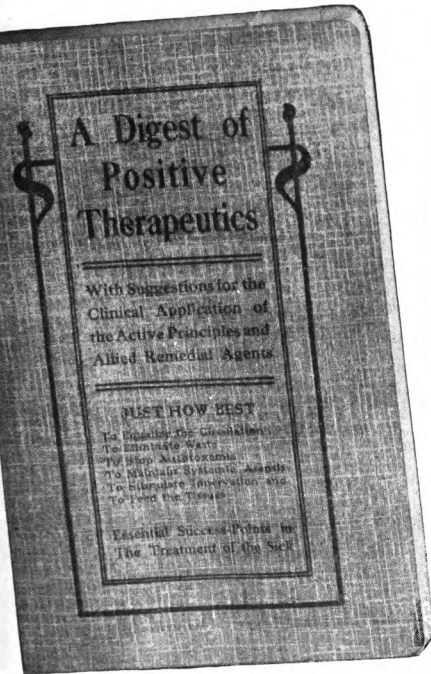
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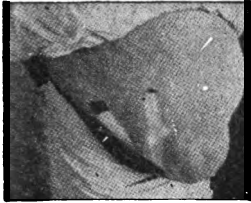
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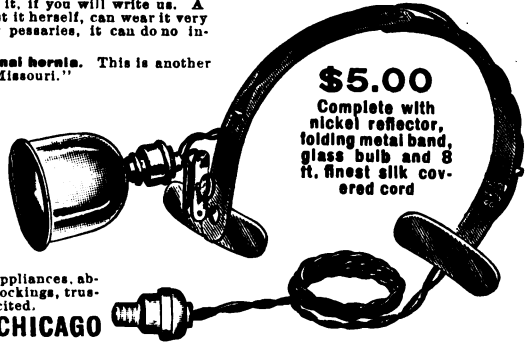
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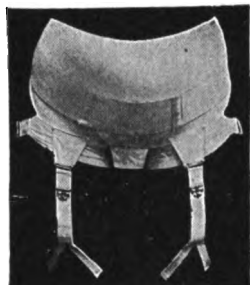
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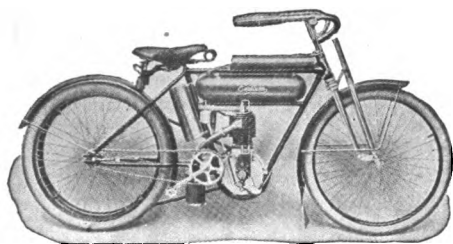
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THERAPEUTIC AND DIETETIC NEWS

BAIRD'S AIR CUSHION PESSARY

Dr. J. N. Applewhite, of Hope, Va., under date of December 18, 1907, writes as follows:

"Your Baird's Air Cushion Pessary that I bought from you a month or so ago is giving good satisfaction to the patient and to myself. I thank you again for it."

Dr. C. F. Hammer, of Crawford, Idaho, says:

"After four months' trial in a very bad case, your Baird's Air Cushion Pessary is all O.K."

Another physician who does not care to have his name mentioned (we will send it privately to any one who is interested) reports that he used the Baird's Air Cushion Pessary on his own

wife. In reporting the result he says:

"I cannot conceive of a much worse case. There is prolapsus complicated with cystocele. She was never able to more than half empty the bladder, and as it forced the interior wall of the vagina downward, it would protrude from the vulvar outlet to such an extent that when she would sit down it came in contact with her clothing and thus kept sore and raw, and of course when she commenced the use of her cushion she was scarcely able to tolerate it, but by the liberal use of the Carbenzol soap and persistent effort, she has finally succeeded in curing up all the soreness, and is able to wear the cushion all the time with great comfort and immense benefit.

"She has no further trouble in emp-

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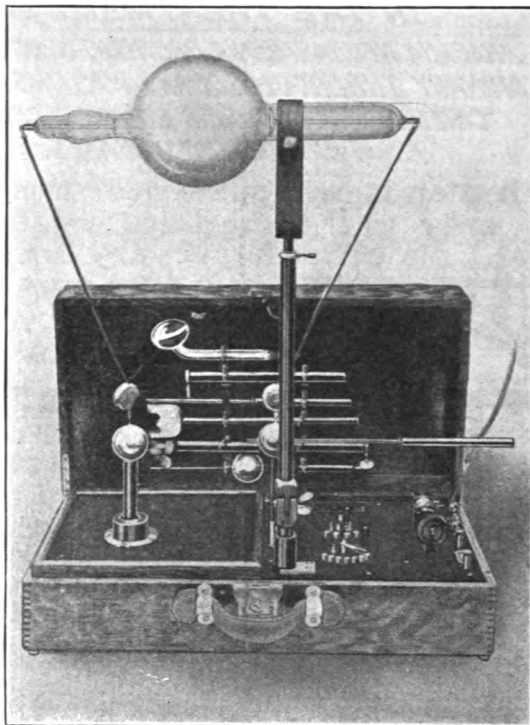
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THERAPEUTIC AND DIETETIC NEWS—*Continued*

tying the bladder and she now goes from the ground floor of the house to the third floor many times a day with ease and without complaint.

"Whilst she had so much soreness, she adopted the plan of taking three or four douches a day of a solution of the Carbenzol soap through a small tube without removing her cushion. This gave her much comfort and enabled her to wear the cushion all day. Now, however, she has no more trouble and is still improving every day."

Dr. M. P. Cady, of Birnamwood, Wis., under date of March 20, 1909, says:

"Please forward me at once two Baird's Air Cushion Pessaries for prolapsus with retroversion. Waist measure about twenty-eight. I enclose check in payment. The pessary ordered last December is giving good satisfaction."

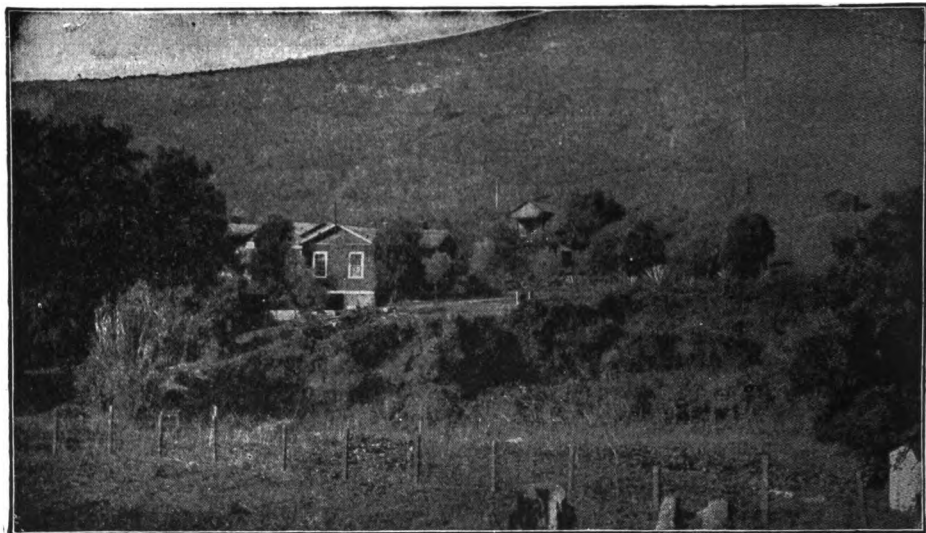
Dr. Margaret Holliday, of Austin, Tex., says, March 16, 1909:

"Enclosed you will find P. O. Money Order for one of your Baird's Air Cushion Pessaries. I have one patient suffering from procidentia now wearing one of these pessaries with which she is delighted."

THE "STORM" ABDOMINAL SUPPORTER

The *Virginia Medical Semi-Monthly*, of January 8, speaks of abdominal supporters in general, and the "Storm" supporter in particular, stating that in so far as the writer is able to judge, the "Storm" is the best article of its kind on the market.

It may be of interest to the readers of the *Monthly Cyclopedia and Medical Bulletin* to know what the conservative physicians of conservative Philadelphia have to say about the Storm Abdominal Supporter. The inventor has had a



Veronica Springs, Santa Barbara, Cal.



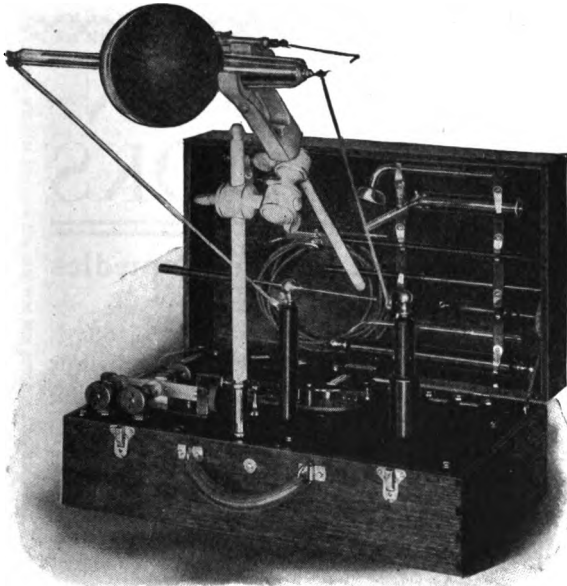
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as is the static machine.

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THERAPEUTIC AND DIETETIC NEWS—Continued

great deal of correspondence with Philadelphia physicians, and the remarkable feature of this correspondence, which can be referred to, but naturally not offered for publication, is that some of the most complimentary comments on the Storm supporter are from physicians of national and even international reputation.

Many a successful appliance has gained a reputation a long way from home, and found it very hard to secure recognition among the nearby doctors. The reverse seems to have been the experience of Dr. Katherine L. Storm in promoting the manufacture and sale of the abdominal supporter bearing her name. Her staunchest friends are those eminent Philadelphia physicians who have ever been noted for their determination to be convinced before taking up a new appliance.

Physicians of other sections should bear this in mind, and communicate with this physician of the Quaker City before making a choice.

Information can be obtained by addressing Dr. Storm, at 1612 Diamond Street, Philadelphia.

ENTEROCLYSIS

In Robert Coleman Kemp's valuable manual upon Enteroclysis, Hyperdermoclysis, and Infusion, there is a brief introductory chapter by William H. Thomson, M.D., LL.D., from which the following is a quotation:

"Lavage of the invisible cavities of the body in inflammatory states of their lining mucous membranes has justly taken rank among the most effective of modern remedial measures.

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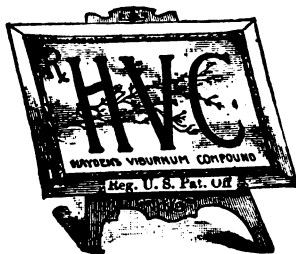
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THERAPEUTIC AND DIETETIC NEWS—*Continued.*

bowel, however, the greater number of advantageous results follow from this procedure, not only by improvement in local conditions, but still more by effects obtainable through certain physiological relations upon the general circulation, as well as others secured through important nervous associations with contiguous organs."

We merely quote the above in order to give the opinion of such an eminent authority as Dr. Thomson upon the value of enteroclysis.

Bearing upon this subject the following clinical report will be of interest:

S. Newmayer, M.D., Phila., Pa. states: Among the varied causes of convulsions none play a more frequent and important part than autointoxication. They are more frequent in children, due generally to a possible overfeeding, improper food, or consti-

pation. The intestinal canal contains a variety of toxins derived from the ingesta, bile, and putrid material. There is continuous absorption from the intestines, including the taking up of toxins.

In the acute infections, where convulsions are oftentimes a forerunner, autointoxication from the intestinal tract undoubtedly is of no minor importance. Infections are the result of microbes and we know these bacteria produce something injurious to the system — they elaborate poisonous ptomaines or toxic substances. Nature tries to rid the body of this poison through its various channels of elimination, one of which is the intestinal canal.

It is here we can aid Nature with our antiseptics. The value of internal intestinal antiseptics I believe is greatly

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overrated. Many of these drugs are soluble and absorbable, and those that are not are so often given in such small doses that in the long journey from the mouth through the intestinal tract they have spent most of their value before they have proceeded far.

Not to employ internal antiseptics would be unwise. But I would urge a more liberal use of antiseptic solutions by means of the rectal tube. This enteroclysis has not only its antiseptic value, diminishing the toxicity of the intestinal tract, but oftentimes an antipyretic action. This mode of treatment has not been very popular with the physician because of the unclean work, but I am confident the results well repay one for the labor.

In all cases of convulsions, immaterial of the cause, and in any other condition pointing to autointoxication, I flush the lower bowel with a solution of glyco-thymoline, one to two ounces to the quart of water.

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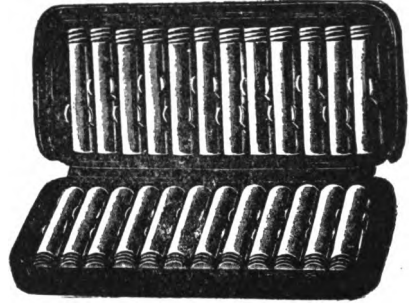
J. D. Albright, M.D., 3228 North Broad St., Philadelphia, in his recent work entitled "Rectal Diseases, Their Diagnosis and Treatment by Ambulant Methods," says, while discussing the treatment of anal and rectal fistulae by local application (page 337):

"After the induration has softened and the pyogenic membrane cast off, so that the interior seems clean and free from inflammation, healing may be stimulated by the application of a silver nitrate solution, five per cent, or special powder protonuclein may be dusted along the tract by means of a powder blower. If the internal opening is small, it should be enlarged sufficiently to permit free irrigation through it."

Others have found that in the treatment of internal hemorrhoids that a solution of protonuclein powder, or protonuclein special powder with olive oil, and a small amount of this solution injected up the rectum gives great relief and has marked healing powers. About three grains of the powdered protonuclein in a tablespoon of olive oil is the usual amount used.

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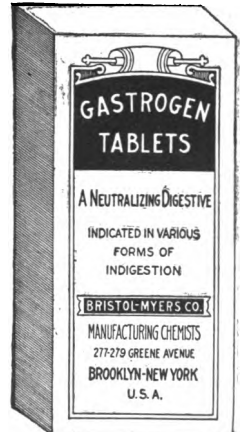
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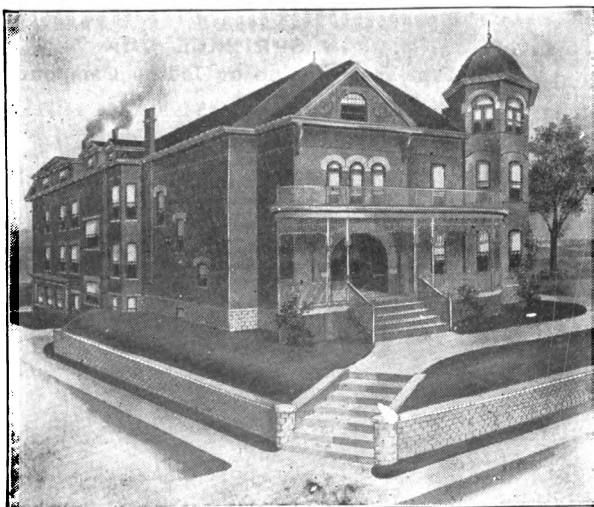
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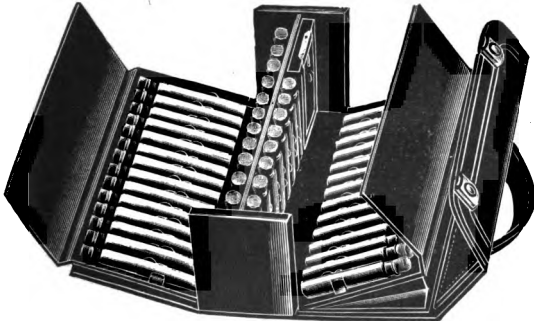
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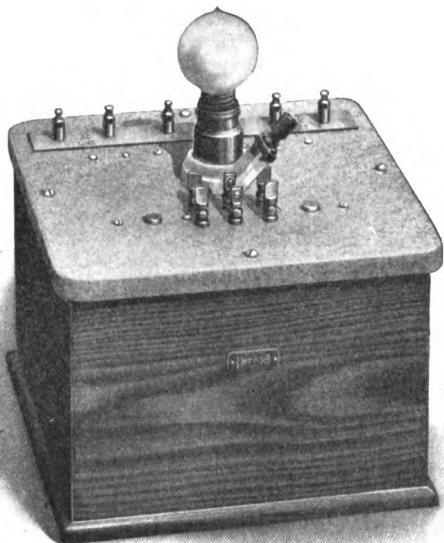
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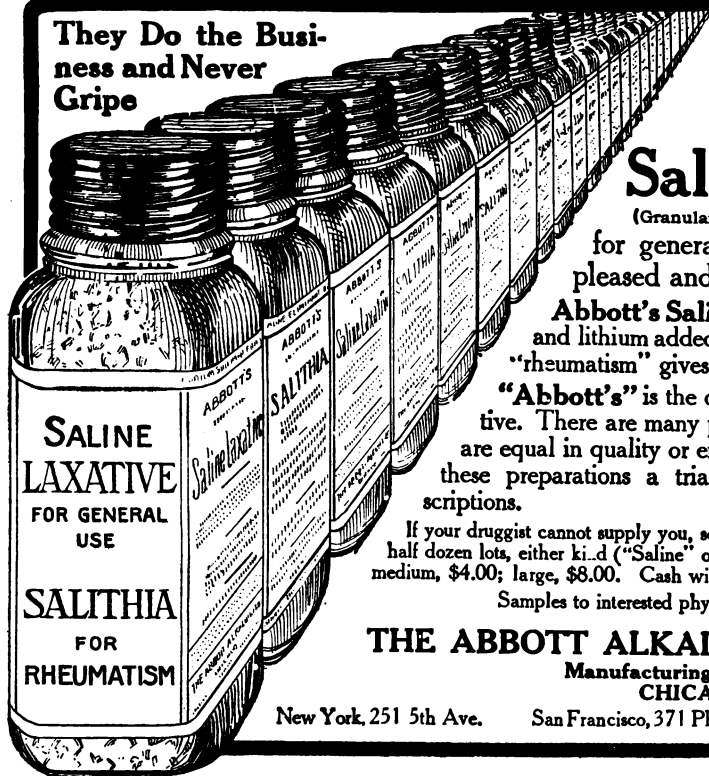
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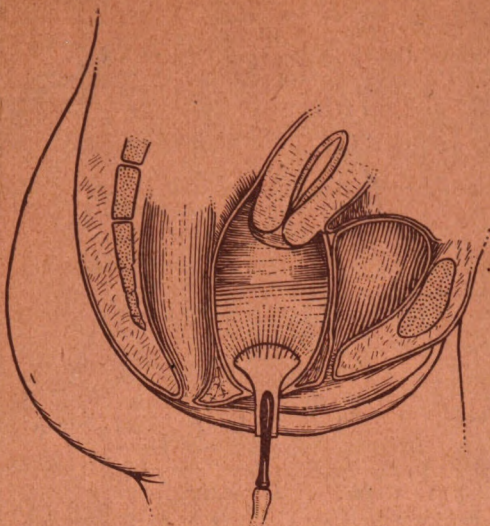
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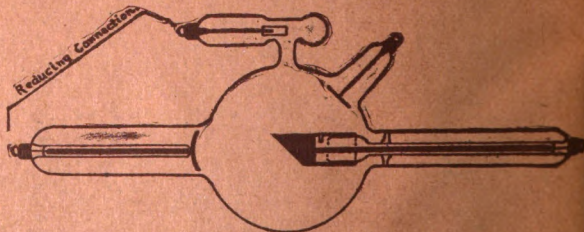
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